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REPORTS

DATE:

12/11/1997



Tipperary
CORPORATION

633 Seventeenth Street
Suite 1550
Denver, Colorado 80202

December 11, 1997

Mr. William C. Olson
Hydrogeologist – Environmental Bureau
New Mexico Energy And Natural Resources Dept.
Oil Conservation Division
2040 South Pacheco 87505
Santa Fe, New Mexico 87504

**Subject: Tatum Pit Closure Project
Lea County, New Mexico
Progress Report Submittal**

Dear Mr. Olson:

Enclosed is a report of activities performed and progress results to date on Tipperary's Tatum pit closure project. Summaries of BETX lab sample analyses containing QA/QC data as well as the EPA analysis method used are included. A geologic log and an as-built-well-diagram for each monitor and water recovery well are also enclosed. In addition, we have provided a water table elevation map for the Iva Com #1 and Mabel Com #1 wells.

We will keep you informed as we evaluate the project data in order to determine whether additional monitor wells are required.

Let me know if you have questions or need more information.

Sincerely,

Larry G. Sugano
Vice President - Engineering

cc: Wayne Price, OCD Hobbs Office

WPWIN \TIP\LETTERS\TatumPitClosureDec97\ReptXminal.112.doc



Executive Summary Tipperary Corporation Tatum Pit Closure Project

Project Objectives

The project consisted of the following segments:

1. Profile each location in order to develop a remediation plan appropriate to each.
2. Obtain State approval for the various remediation protocols and procedures.
3. Excavate and remediate all sites.
4. Report the results.

Profiling

The initial site characterization occurred in January, 1996 at which time the sites were assessed for size and extent of surface contamination. No attempt was made to determine the depth of contamination nor the vertical distance to ground water. Subsequent excavation of two sites (Iva & Mable COM) in December 1996 revealed that the contamination extended further than anticipated and as a result, vertical core samples were obtained and analyzed in January 1997.

An analysis of the results revealed that contamination in the form of free product was present atop the water table on two locations, and that the vertical extent of contamination at all other sites precluded excavation and remediation to the general standards outlined by the OCD under their *General Guidelines for Unlined Surface Impoundments*.

A study of alternative remediation techniques were researched and submitted to Tipperary Corporation by Whole Earth Environmental in March 1997. A risk based remediation plan utilizing site modeling, impermeable liners and recovery wells was selected.

Plan Approval

The remediation protocols and procedures were submitted to the OCD in April 1997 and approved with comments in June.

Remediation

The remediation of the pits was begun in August and completed in September as follows:



All soils exceeding a concentration of $>10,000$ ppm TPH were either removed to a licensed landfill or remediated in place. The backfill materials were tested to the required closure standards of $<10,000$ ppm TPH, <10 ppm Benzene and <50 ppm total BTEX. Mr. Wayne Price with the OCD witnessed and took split samples on most locations. Results for each location are included within the appropriate sections of this report.

Recovery wells were set on three locations. They are pumping into netted open top tanks for eventual disposal into the Burro Pipeline System.

We have drilled, cased, developed and sampled twenty-four monitor wells. The test results for each well are included within the various site sections of this report and additionally summarized within this Executive Summary. We propose that Tipperary sample each monitoring well each quarter for the presence of BTEX. After four consecutive quarters in which the BTEX concentrations are within WQCC acceptance standards, Tipperary will revert to a semi-annual schedule for a period of one year. Two years of acceptable concentrations will result in a clean closure status. Upon formal closure, the monitor wells may be removed.

Based on the ambiguous results of the December sampling, I recommend the postponement of drilling any further monitoring wells until after the March 1998 sampling round.

4.0 Documentation

The enclosed report contains the following information:

- A. Photographs of each pit site to include before excavation, the pit at the point of maximum excavation, installation of the liner, and after replacing the top cover.
- B. Preliminary schematics of each location.
- C. Detailed recovery and monitoring well logs to include installation details.
- D. Analytical Summaries of tests completed.
- E. Copies of the laboratory analyses showing EPA approved methods and QC references.

At the time of closure, the State will be provided with all quarterly test results, original Chain of Custody forms, disposal manifests and all requisite State forms.



Sampling Summary

Iva COM

Iva is an unlined pit on which a recovery well was erected. Two monitor wells are situated at an average distance of 115' down-gradient from the recovery well. Neither sampling round shows BTEX concentrations in excess of WQCC standards. The pit was excavated to a depth of 24' and the top of the Ogallala is 48'.

Mable COM

Mable is an unlined pit on which a recovery well was erected. Two monitor wells are situated at an average distance of 140' down-gradient from the recovery well. The pit was excavated to a depth of 22' however the sub-strait caliche beneath the pit was extremely fractured. The top of the Ogallala is 43'. The September 5th sampling round revealed benzene concentrations of ten and fifteen parts per billion with the remaining BTEX compounds within WQCC standards. The December 3rd sampling showed a dramatic increase in benzene concentrations probably due to the excavation of the site.

Vera

Vera is a lined pit with a single monitoring well located at a distance of 110' from the pit center. The depth to ground water is approximately 50' and the pit was excavated to a total depth of 21'. This pit was never blasted and the caliche layer under the pit was subsequently undisturbed. Neither sampling round revealed BTEX concentrations in excess of WQCC standards.

Bell

Bell is a lined pit with three monitoring wells. The first is located at a distance of 60' from the pit center; the second two at an average distance of 150'. The depth to ground water is approximately 43' and the pit was excavated to a total depth of 18'. This pit was previously blasted and the caliche layer under the pit was highly fractured. A comparison of test results from the monitoring well nearest the pit center (no. 8) shows a 91% reduction in BTEX concentrations over a three month interval.

NBN

NBN is a lined pit with a single monitoring well located at a distance of 90' from the pit center. The depth to ground water is approximately 43' and the pit was excavated to a total depth of 17'. This pit was never blasted and the caliche layer under the pit was subsequently undisturbed. The September sampling showed all BTEX concentrations within WQCC standards however the December sampling showed an increase in the benzene levels possibly resulting from the pit excavation.



NBF

NBF is a lined pit with three monitoring wells. The first is located at a distance of 83' from the pit center, the second two at an average distance of 150'. The depth to ground water is approximately 43' and the pit was excavated to a total depth of 24'. As in the previous examples, the well nearest the pit center showed a substantial (97%) reduction in BTEX concentrations with the outlying wells generally showing increases.

Sohio # 1

Sohio # 1 is a lined pit with three monitoring wells. The first is located at a distance of 100' from the pit center, the second two at an average distance of 150'. The depth to ground water is approximately 53' and the pit was excavated to a total depth of 21'. As in the previous examples, the well nearest the pit center showed a reduction in BTEX concentrations with the outlying wells generally having increases.

Sohio "A"

Sohio "A" is a lined pit with three monitoring wells. The first is located at a distance of 90' from the pit center, the second two at an average distance of 150'. The depth to ground water is approximately 53' and the pit was excavated to a total depth of 26'. As in the previous examples, the well nearest the pit center showed a reduction in BTEX concentrations with the outlying wells generally having increases.

G.S. State

G.S. State is a lined pit with three monitoring wells and a recovery well. The first monitor well is located at a distance of 52' from the pit center, the second two at an average distance of 150'. The depth to ground water is approximately 43' and the pit was excavated to a total depth of 17'. During the September sampling we found the BTEX concentrations within the nearest well to the pit center (well no. 12) to be .092 ppm benzene and total BTEX concentrations of .201 ppm. The sub-strait caliche is extremely fractured. The December sampling round showed free product within the well bore of well no. 2 making sampling impossible. As in the case of all similar outlying wells, the BTEX concentrations have risen.

Satellite # 4

Satellite # 4 is a lined pit with three monitoring wells. The first is located at a distance of 80' from the pit center, the second two at an average distance of 150'. The depth to ground water is approximately 28' and the pit was excavated to a total depth of 21'. As in the previous examples, the well nearest the pit center showed a reduction in BTEX concentrations with the outlying wells generally having increases.



QP-76 (Rev. A)

**WHOLE EARTH ENVIRONMENTAL
QUALITY PROCEDURE**

**Procedure for Obtaining Water Samples (Cased Wells)
Using One Liter Bailer**

Completed By: _____ Approved By: _____ Effective Date: / /

1.0 Purpose

This procedure outlines the methods to be employed in obtaining water samples from cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Preliminary

3.1 Obtain sterile sampling containers from the testing laboratory designated to conduct analyses of the water. The shipment should include a Certificate of Compliance from the manufacturer of the collection bottle or vial and a Serial Number for the lot of containers. Retain this Certificate for future documentation purposes.

3.2 The following table shall be used to select the appropriate sampling container, preservative method and holding times for the various elements and compounds to be analyzed.

Compound to be Analyzed	Sample Container Size	Sample Container Description	Cap Requirements	Preservative	Maximum Hold Time
BTEX	40 ml.	VOA Container	Teflon Lined	HCl	7 days
TPH	1 liter	clear glass	Teflon Lined	HCl	28 days
PAH	1 liter	clear glass	Teflon Lined	Ice	7 days
Cation / Anion	1 liter	clear glass	Teflon Lined	None	48 Hrs.
Metals	1 liter	HD polyethylene	Any Plastic	Ice / HNO ₃	28 Days
TDS	300 ml.	clear glass	Any Plastic	Ice	7 Days

4.0 Chain of Custody

- 4.1 Prepare a Sample Plan. The plan will list the well identification and the individual tests to be performed at that location. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.
- 4.2 Transfer the data to the Laboratory Chain of Custody Form. Complete all sections of the form except those that relate to the time of delivery of the samples to the laboratory.
- 4.3 Pre-label the sample collection jars. Include all requested information except time of collection. (Use a fine point Sharpie to insure that the ink remains on the label). Affix the labels to the jars.

5.0 Bailing Procedure

- 5.1 Identify the well from the site schematics. Place pre-labeled jar(s) next to the well. Remove the bolts from the well cover and place the cover with the bolts nearby. Remove the plastic cap from the well bore by first lifting the metal lever and then unscrewing the entire assembly.
- 5.2 The well may be equipped with an individual 1 liter bailing tube. If so, use the tube to bail a volume of water from the well bore equal to 10 liters for each 5' of well bore in the water table. (This assumes a 2" dia. Well bore).
- 5.3 Take care to insure that the bailing device and string do not become cross-contaminated. A clean pair of rubber gloves should be used when handling either the retrieval string or bailer. The retrieval string should not be allowed to come into contact with the ground.

6.0 Sampling Procedure

- 6.1 Once the well has been bailed in accordance with 5.2 of this procedure, a sample may be decanted into the appropriate sample collection jar directly from the bailer. The collection jar should be filled to the brim. Once the jar is sealed, turn the jar over to detect any bubbles that may be present. Add additional water to remove all bubbles from the sample container.
- 6.2 Note the time of collection on the sample collection jar with a fine Sharpie.

6.3 Place the sample directly on ice for transport to the laboratory. The preceding table shows the maximum hold times between collection and testing for the various analyses.

6.4 Complete the Chain of Custody form to include the collection times for each sample. Deliver all samples to the laboratory.

7.0 Documentation

7.1 The testing laboratory shall provide the following minimum information:

- A. Client, Project and sample name.
- B. Signed copy of the original Chain of Custody Form including data on the time the sample was received by the lab.
- C. Results of the requested analyses
- D. Test Methods employed
- E. Quality Control methods and results



QP-78

**WHOLE EARTH ENVIRONMENTAL
QUALITY PROCEDURE**

**Procedure for Obtaining Water Samples (Cased Wells)
Using Enviro-Tech ES-60 Pump**

Completed By: _____ Approved By: _____ Effective Date: / /

1.0 Purpose

This procedure outlines the methods to be employed in obtaining water samples from cased monitoring wells.

2.0 Scope

This procedure shall be used for developed, cased water monitoring wells. It is not to be used for standing water samples such as ponds or streams.

3.0 Preliminary

3.1 Obtain sterile sampling containers from the testing laboratory designated to conduct analyses of the water. The shipment should include a Certificate of Compliance from the manufacturer of the collection bottle or vial and a Serial Number for the lot of containers. Retain this Certificate for future documentation purposes.

3.2 The following table shall be used to select the appropriate sampling container, preservative method and holding times for the various elements and compounds to be analyzed.

Compound to be Analyzed	Sample Container Size	Sample Container Description	Cap Requirements	Preservative	Maximum Hold Time
BTEX	40 ml.	VOA Container	Teflon Lined	HCl	7 days
TPH	1 liter	clear glass	Teflon Lined	HCl	28 days
PAH	1 liter	clear glass	Teflon Lined	Ice	7 days
Cation / Anion	1 liter	clear glass	Teflon Lined	None	48 Hrs.
Metals	1 liter	HD polyethylene	Any Plastic	Ice / HNO ₃	28 Days
TDS	300 ml.	clear glass	Any Plastic	Ice	7 Days

4.0 Chain of Custody

- 4.1 Prepare a Sample Plan. The plan will list the well identification and the individual tests to be performed at that location. The sampler will check the list against the available inventory of appropriate sample collection bottles to insure against shortage.
- 4.2 Transfer the data to the Laboratory Chain of Custody Form. Complete all sections of the form except those that relate to the time of delivery of the samples to the laboratory.
- 4.3 Pre-label the sample collection jars. Include all requested information except time of collection. (Use a fine point Sharpie to insure that the ink remains on the label). Affix the labels to the jars.

5.0 Bailing Procedure

- 5.1 Identify the well from the site schematics. Place pre-labeled jar(s) next to the well. Remove the bolts from the well cover and place the cover with the bolts nearby. Remove the plastic cap from the well bore by first lifting the metal lever and then unscrewing the entire assembly.
- 5.2 Lower the ES-60 pump into the monitor well bore taking care to insure that the pump and first 10' of hose and cable does not touch the ground or become cross-contaminated by contact with anything containing hydrocarbon residues. When the pump reaches the bottom of the well bore you will feel the hose and cable assembly go slack. Lift the pump a minimum distance of 18" above the bottom of the well bore and clamp the hose assembly to the top of the well bore by means of vice grips. (Take care to insure that the vice grips are adjusted so as not to "choke" the hose.
- 5.3 Attach the electrical cable leads to an automobile battery and begin pumping the well bore. If the pump does not bring fluid to the surface within one minute, disconnect the electrical leads, and re-connect for four seconds three times to remove air cavitation.
- 5.4 The pump has a minimum volume of 2.8 gallons per minute at 60'. Purge the well by pumping for a minimum of 10 minutes before taking a sample.

6.0 Sampling Procedure

- 6.1 Once the well has been bailed in accordance with 5.2 of this procedure, a sample may be decanted into the appropriate sample collection jar directly from the bailer. The collection jar should be filled to the brim. Once the jar is sealed, turn the jar over to detect any bubbles that may be present. Add additional water to remove all bubbles from the sample container.

- 6.2 Note the time of collection on the sample collection jar with a fine Sharpie.
- 6.3 Place the sample directly on ice for transport to the laboratory. The preceding table shows the maximum hold times between collection and testing for the various analyses.
- 6.4 Complete the Chain of Custody form to include the collection times for each sample. Deliver all samples to the laboratory.

7.0 Decontamination

- 7.1 After removing the pump from the well, use an aerosol spray pump bottle filled with denatured isopropyl alcohol to clean the pump and first 10' of the cable and hose assembly. Rinse the sprayed portion with distilled water to remove the alcohol and dry with a clean rag. Discard the rag after each use. During transport, the pump assembly should be carried in a 2" PVC protective sleeve.

8.0 Documentation

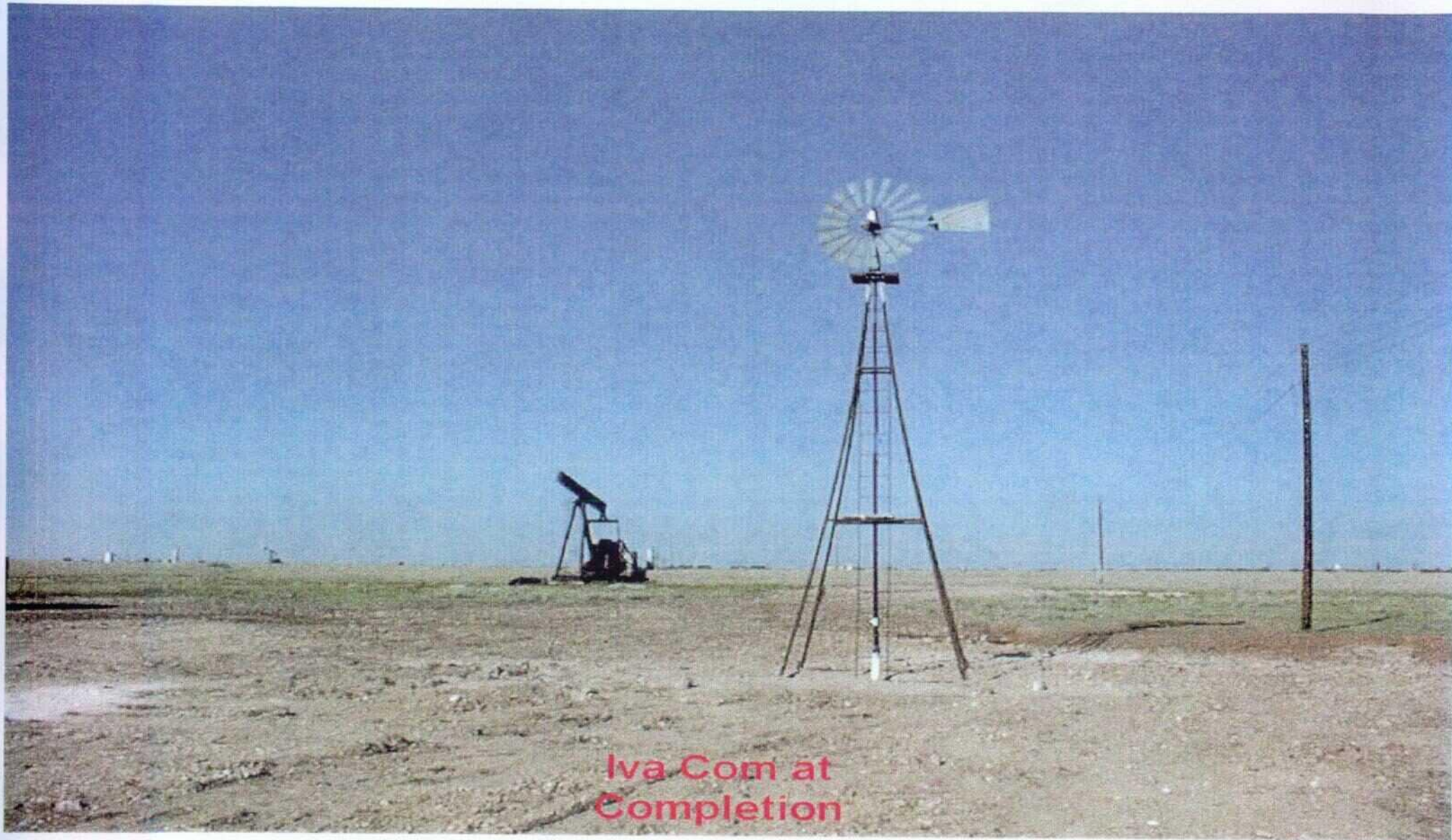
- 8.1 The testing laboratory shall provide the following minimum information:
 - A. Client, Project and sample name.
 - B. Signed copy of the original Chain of Custody Form including data on the time the sample was received by the lab.
 - C. Results of the requested analyses
 - D. Test Methods employed
 - E. Quality Control methods and results

Tipperary Corporation Water Monitoring Well Sampling Summary

Well Name	Well #	First Sampling					Second Sampling				
		benzene	toluene	e-benzene	xylene	BTEX	benzene	toluene	e-benzene	xylene	BTEX
Iva	1	0.001	0.001	0.001	0.009	0.012	0.004	0.003	0.001	0.017	0.025
Iva	2	0.001	0.001	0.001	0.002	0.005	0.002	0.002	0.001	0.008	0.013
Mable	3	0.010	0.008	0.031	0.151	0.200	1.093	0.024	0.097	0.173	1.387
Mable	4	0.015	0.002	0.002	0.012	0.031	1.465	0.007	0.017	0.012	1.501
Vera	5	0.003	0.002	0.002	0.012	0.019	0.002	0.001	0.003	0.019	0.025
Bell	6	0.687	0.013	0.024	0.066	0.790	0.029	0.004	0.002	0.033	0.068
NBN	7	0.001	0.001	0.001	0.002	0.005	0.017	0.002	0.001	0.003	0.023
NBF	8	0.302	0.208	0.039	0.414	0.963	0.017	0.002	0.001	0.003	0.023
Sat. 4	9	0.092	0.010	0.015	0.084	0.201	0.067	0.009	0.006	0.041	0.123
Sohio 1	10	2.599	1.148	0.243	1.338	5.328	2.148	0.062	0.173	1.243	3.626
Sohio A	11	0.096	0.004	0.002	0.020	0.122	0.057	0.009	0.007	0.051	0.124
Bell	13	1.309	0.003	0.020	0.014	1.346	0.002	0.001	0.001	0.006	0.010
Bell	14	0.001	0.001	0.001	0.002	0.005	1.147	0.007	0.017	0.012	1.183
NBF	15	1.950	1.823	0.381	2.278	6.432	2.289	1.176	0.338	1.696	5.499
NBF	16	0.835	0.111	0.090	0.313	1.349	0.234	0.003	0.004	0.015	0.256
Sohio 1	17	0.799	0.128	0.141	0.920	1.988	1.409	0.053	0.116	0.727	2.305
Sohio 1	18	1.276	0.614	0.206	1.201	3.297	2.063	0.178	0.118	0.002	2.361
Sohio A	19	0.003	0.001	0.001	0.003	0.008	0.009	0.002	0.003	0.859	0.873
Sohio A	20	0.385	0.009	0.010	0.025	0.429	0.284	0.005	0.008	0.048	0.345
G.S.	21	0.026	0.008	0.005	0.124	0.163	0.166	0.013	0.059	0.715	0.953
G.S.	22	0.138	0.005	0.001	0.004	0.148	0.015	0.005	0.010	0.142	0.170
Sat. 4	23	0.001	0.001	0.001	0.003	0.006	0.040	0.012	0.009	0.061	0.122
Sat. 4	24	0.001	0.001	0.001	0.003	0.006	0.017	0.006	0.005	0.036	0.064
Totals		6.724	2.705	0.858	4.890	22.853	7.675	1.461	0.688	4.319	14.141
% Reduction							-0.14	0.46	0.20	0.12	0.38



Iva Com # 1

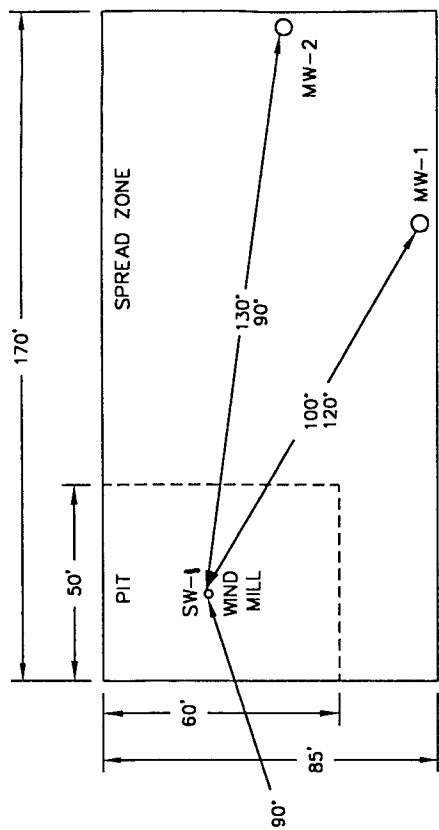
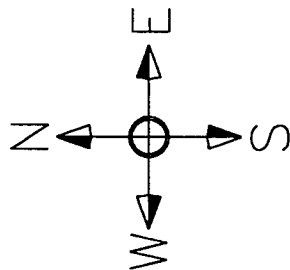


Iva Com at
Completion



Iva COM at
Completion

IVA COM.



WATER
RECOVERY
TANK

60'

STORAGE
TANK

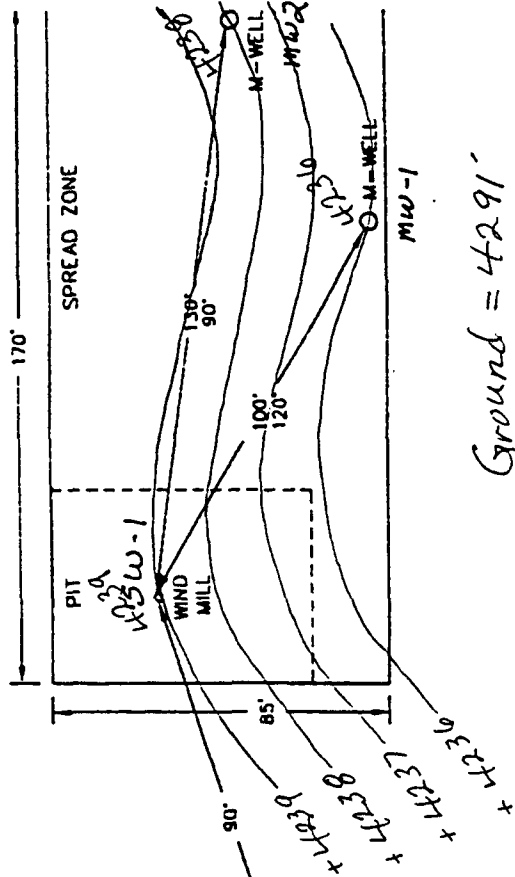
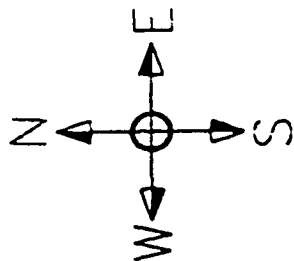
STORAGE
TANK

190'

PUMP
JACK

EXCAVATED DEPTH 24'
2,667 CU. YDS.

IVA COM.



UNITED
RECOVERY
TANK

60'

STORAGE
TANK

STORAGE
TANK

190'

PUMP
JACK

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Ivacom MW-1 (Page 1 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 14, 1997 Drill Start : 1110 Drill End : 1335 Boring Location : Sec. 20, Ivacom		Site Location : 17 miles W. of Tatum, NM Auger Type : Hollow Stem Logged By : Mark Bates

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
0		CL	Clay, silty, brown, firm, damp	Well: MW-1 Elev.: 8"x12" monitor well cover with 2'x2' concrete base Cap Concrete 2 in. pvc casing Grout
5			Caliche Rock, clayey, tan, hard to firm, dry	
10				
15				
20				
25		CL	Clay, silty, sandy, tan, firm, damp	
30				

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Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Ivacom MW-1 (Page 2 of 3)		
Tipperary Oil and Gas Corporation 833 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 14, 1997 Drill Start : 1110 Drill End : 1235 Boring Location : Sec. 20, N43com		Site Location : 17 miles W. of Tatum, NM Auger Type : Hollow Stem Logged By : Mori Bates

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	Well: MW-1 Elev.:
30	CL	CL		Grout 2 in. pvc casing
35				
40				
45	CL	CL	Clay, sandy, red, loose, moist	Bentonite Seal
50				
55	CL	CL	Clay, sandy, tan, loose, wet Water Level = 54.92 ft.	8/16 Sand Pack .020 slot screen, 2 in. dia.
60				
60	SP		Sand, tan, loose, saturated	

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Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Ivacom MW-1 (Page 3 of 3)	
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 14, 1997 Drill Start : 1110 Drill End : 1335 Boring Location : Sec. 20, Ivacom	
			Site Location : 17 miles W. of Tatum, NM Auger Type : Hollow Stem Logged By : Mark Bales	

Depth in feet	GRAPHIC	USCS	DESCRIPTION
60		SP	Well: MW-1 Elev.: 8/16 Sand Pack .020 slot screen, 2 in. dia.
65			
70			
75			TD=70 ft. Well was bailed after drilling
80			
85			
90			

08-03-1997 c:\mydata\lms\schlumberger\lms\lms1.dwg

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156		LOG OF BORING Ivacom MW-2 (Page 1 of 3)	
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental		Date : 8/14/97 Drill Start : 1340 Drill End : 1600 Boring Location : Sec. 20, T4a-Cor. 40' from mid pit, 60' N. of MW #2	Site Location : 17 mi. W of Tatum, NM Auger Type : Hollow Stem Logged By : Mort Bates

Depth feet	GRAPHIC	USCS	DESCRIPTION	
0		CL	Silly Clay, brown, Firm, Damp	Well MW-2 Elev.: 8"x12" monitor well cover with 2"x2" concrete base Cap Concrete 2 in. schedule 40, pvc casing Grout
5			Caliche Rock, clayey, brown, hard to stiff, damp	
10				
15				
20				
25		CL	Caliche, Clay, Tan, Stiff, Dry to Damp	
30				

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Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Ivacom MW-2 (Page 2 of 3)	
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : 8/14/97 Drill Start : 1340 Drill End : 1600 Boring Location : Sec. 20, 1/4-Com, 40' from mid pit, 60' N. of MW #2	
Site Location : 17 mi. W of Tatum, NM Auger Type : Hollow Stem Logged By : Mort Bates				

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
30	CL			
35	CL		Caliche Rock, clayey, Tan, Hard to Split, Dry	
40	CL			
45	CL			
50	SP		Clayey Sand, Tan, Loose, Damp	
55	CL		Sandy Clay, Tan, Loose, Wet to Saturated Water Level = 53 ft.	
60	CL			

Well: MW-2
Elev.:

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156		LOG OF BORING Ivacom MW-2 (Page 3 of 3)	
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202		Date : 8/14/97 Drill Start : 1340 Drill End : 1600 Boring Location : Sec. 20, Ivacom 40' from mid pt, 60' N. of MW #2	Site Location : 17 mi. W of Tatum, NM Auger Type : Hollow Stem Logged By : Mori Bates
c/o Whole Earth Environmental			

Depth in feet	GRAPHIC	USCS	DESCRIPTION
60		CL	TD=70 ft. Baled well for one hour after drilling
65			
70			
75			
80			
85			
90			

Well: MW-2
 Elev.:

8/16 Sand Pack
 .020 slot screen, 2 in. ID

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Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156		LOG OF BORING Ivacom R-1 (Page 1 of 1)	
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental		Date : August 25, 1997 Drill Start : 1130 Drill End : 1240 Boring Location : Ivacom, Section 20	Site Location : 17 miles W. of Tatum, NM Auger Type : Hollow Stem Logged By : Mark Bates
Depth in feet	GRAPHIC USCS	DESCRIPTION	
0		Caliche rock and clay, backfill, stiff to loose, tan, damp	
5		Caliche rock with clay, tan, firm, damp	
10		Drilling into native soil and not in the pit as the contractor indicated. Unable to contact Tipperary or Mr. Griffin so continued drilling until further information. Mr. Warner arrived on-site and adjusted the well site 40 ft. NW. Test Hole plugged with bentonite and grout.	
15			
20			
25			
30		TD=30 ft.	

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Ivacom R-1A (Page 1 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : 8/25-26/97 Site Location : 18 miles W. of Tatum, NM Drill Start : 1:15 pm (8/25/97) Auger Type : Hollow Stem Drill End : 10:45 am (8/26/97) Logged By : Mort Bates Boring Location : Sec. 20, Ivacom, Center of Pit		

Depth in feet	GRAPHIC	USCS	DESCRIPTION		
0			Cache Rock, clayey, stiff, tan and brown, damp, backfill	Well: R-1A Elev.: 8"x12" monitor well cover with 2x2" concrete base Cap	
5					
10					
15					
20					
25					
30					
30			CL	Clay, sandy, silty, tan, loose to stiff, damp	4 in. schedule 40, pvc casing Grout

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Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156			LOG OF BORING Ivacom R-1A (Page 2 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : 8/25-26/97 Site Location : 18 miles W. of Tatum, NM Drift Start : 1:15 pm (8/25/97) Auger Type : Hollow Stem Drift End : 10:45 am (8/26/97) Logged By : Mort Bates Boring Location : Enc. 20, Ivacom, Center of Pit		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	Well: R-1A Elev.:
30	CL			GROUT 4 in. schedule 40, pvc casing Bentonite Seal Sand Pack 4 in. .032 slot screen
35				
40				
45				
50				
55				
60				
65				
70				
75				
			Water Level = 52 ft. Clay, sandy, silty, tan, loose, damp Finished 5:00pm, 8-25-97 Began 6:45 am, 8-26-97	

08-05-1997 c:\mydocu\1\mact\logp\1\wells\log

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156			LOG OF BORING Ivacom R-1A (Page 3 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : 8/25-26/97 Date Started : 1:15 pm (8/25/97) Drill End : 10:45 am (8/26/97) Boring Location : Sec. 20, Ivacom, Center of PH		
			Site Location : 18 miles W. of Tatum, NM Auger Type : Hollow Stem Logged By : Mort Bates		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
60		CL		Sand Pack 4 in. .032 slot screen
65				
			TD=68 ft.	
70			Pumped well for 2.25 hours with highest pump rate of 10 gpm. Lowered rate to 4.5 gpm then steadied to 6.0 gpm. Pumped at 6.0 gpm for 1 hour with pumped placed 2 ft from total depth. Drawdown = 6.0 ft.	
75				
80				
85				
90				

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

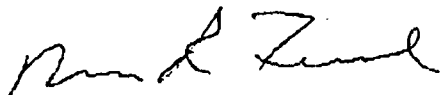
TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4258

Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13174	NBN MW-7	0.017	0.002	<0.001	0.001	0.002
13175	NBF MW-8	0.051	0.007	0.012	0.047	0.009
13176	NBF MW-16	0.234	0.003	0.004	0.012	0.003
13177	MABLE COM. MW-3	1.093	0.024	0.097	0.153	0.020
13178	MABLE COM. MW-4	1.465	0.007	0.017	0.010	0.002
13179	BELL A MW-G	0.029	0.004	0.002	0.030	0.003
13180	BELL A MW-13	0.002	0.001	<0.001	0.005	0.001
13181	BELL A MW-14	1.147	0.007	0.017	0.010	0.002
13182	IVA COM. MW-1	0.004	0.003	0.001	0.009	0.008
13183	IVA COM. MW-2	0.002	0.002	0.001	0.006	0.002
% IA		93	93	93	92	95
% EA		101	101	103	102	104
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

12-5-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/08/97
Sample Type: WATER
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 09/09/97
Sampling Date: 09/05/97, 09/06/97
Sample Condition: Intact/Ice

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12475	IVA COM MW#1	<.001	<.001	<.001	0.002	0.007
12476	IVA COM MW#2	<.001	<.001	<.001	<.001	<.001
12477	IVA COM SW	3.129	2.551	0.209	1.182	0.094
12478	GS #12	1.834	0.055	0.061	3.085	0.084
12481	BELL #6	0.687	0.013	0.024	0.060	0.006
12482	NBN #7	<.001	<.001	<.001	<.001	<.001
12483	SOHIO 1 #10	2.559	1.148	0.243	1.257	0.081
12484	SOHIO A #11	0.096	0.004	0.002	0.008	0.012
12485	SAT 4 #9	0.092	0.010	0.015	0.082	0.002
12486	NBF #8	0.302	0.208	0.039	0.253	0.161
12487	VERA #5	0.003	0.003	0.005	0.021	0.029
12488	MABLE MW #3	0.010	0.008	0.031	0.139	0.012
12489	MABLE MW #4	0.015	0.002	0.002	0.010	0.002
% IA		111	111	112	111	113
% EA		113	112	114	112	111
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020, 5030


Michael R. Fowler

9-10-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM.N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<.100	<.100	<.100	0.105	<.100	<10
12422	MABLE FINAL	<.100	0.165	0.129	0.255	<.100	11
12423	VERA FINAL	<.100	0.126	<.100	0.192	<.100	10
12424	BELL FINAL	<.100	<.100	<.100	<.100	<.100	24
12425	NBN FINAL	<.100	<.100	<.100	<.100	<.100	103
12426	NBF FINAL	<.100	<.100	<.100	<.100	<.100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6,702
12428	SOHIO 1 FINAL	<.100	0.373	0.142	0.463	0.342	15,016
12429	G.S. FINAL	<.100	<.100	<.100	<.100	<.100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<.100	<.100	<.100	0.217	0.166	2,963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

17
copies

Receiving Date: 08/21/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 08/21/97
Sampling Date: 08/20/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12239	NBN NORTH	<.100	<.100	<.100	0.168	<.100	<10
12240	NBN SOUTH	<.100	<.100	<.100	<.100	<.100	<10
12241	NBN EAST	<.100	0.571	0.409	2.547	0.85	1,222
12242	NBN WEST	<.100	<.100	<.100	0.144	<.100	21
12243	NBN BTM	<.100	0.149	0.14	0.303	0.151	1,965
12244	IVA BOTTOM (RE-TEST)	<.100	<.100	<.100	<.100	<.100	1,577
12245	NBF NORTH	<.100	0.125	<.100	0.377	0.245	1,063
12246	NBF SOUTH	<.100	0.107	0.201	0.694	0.898	8,389
12247	NBF EAST	<.100	<.100	<.100	<.100	<.100	<10
12248	NBF WEST	<.100	0.103	<.100	0.327	0.254	4,699
% IA		106	97	95	93	97	94
% EA		109	102	99	97	100	98
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-28-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

23 copies

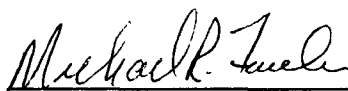
WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 08/14/97
Sample Type: SOIL
Project: TIPPERARY PIT CLOSURE
Project Location: TATUM, NEW MEXICO

Analysis Date: BTEX 08/14/97
Analysis Date: DRO 08/15/97
Sampling Date: 08/14/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12094	IVA NORTH	<.100	<.100	<.100	0.210	0.452	6.227
12095	IVA SOUTH	<.100	<.100	<.100	0.563	0.499	8.466
12096	IVA EAST	<.100	0.579	0.282	2.471	1.969	7.285
12097	IVA WEST	<.100	0.249	<.100	0.661	0.566	3.333
12098	IVA BOTTOM	<.100	0.808	0.426	4.286	1.827	12.795
12099	MABLE NORTH	<.100	<.100	<.100	0.164	<.100	37
12100	MABLE SOUTH	<.100	<.100	<.100	<.100	<.100	<10
12101	MABLE EAST	0.137	3.466	2.124	10.297	6.111	10.599
12102	MABLE WEST	<.100	<.100	<.100	<.100	<.100	11
12103	MABLE BOTTOM	<.100	0.194	<.100	0.329	0.192	30
12104	SOHIO	<.100	<.100	<.100	<.100	<.100	14
% IA		91	87	89	84	91	98
% EA		89	86	88	83	91	100
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date



Iva COM # 1
Water Sampling Results

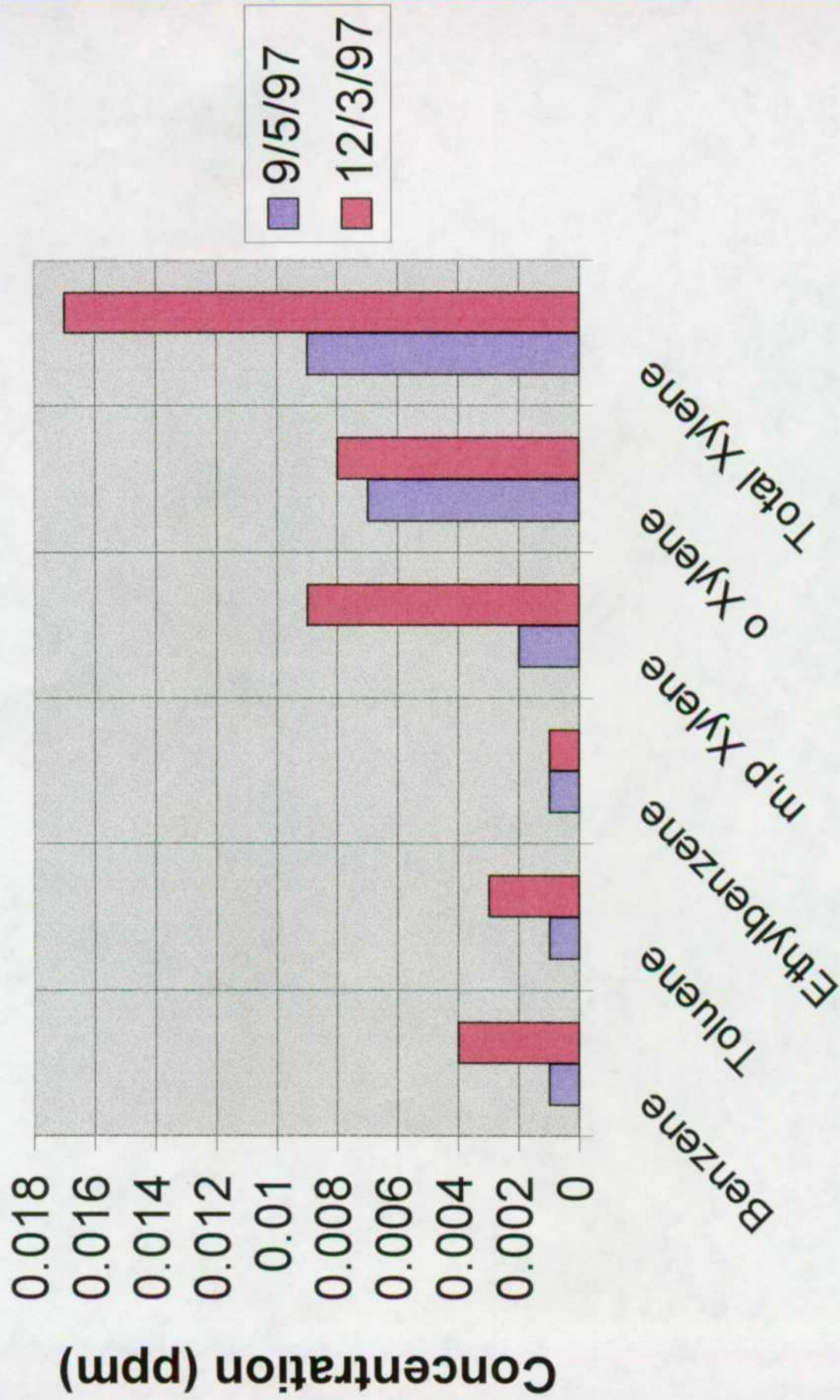
Sample I.D. (Lab)	ELT 12475	ELT 12476	ELT 12477	New Mexico WQCC Allowable Concentrations
Date Sampled	9/5/97	9/5/97	9/5/97	
Date Analyzed	9/9/97	9/9/97	9/9/97	
Source I.D.	M.W. # 1	M.W. # 2	SW # 1	

BTEX				
Benzene	<.001	<.001	3.129	0.010
Toluene	<.001	<.001	2.551	0.750
Ethylbenzene	<.001	<.001	0.209	0.750
m,p xylene	0.002	<.001	1.182	
o xylene	0.007	<.001	0.094	
(Ttl. Xylene)	0.009	<.001	1.276	0.620

**Monitor Well # 1
Iva COM
Sampling Results**

Lab. #	12475	13182
Sample Date	9/5/97	12/3/97
Benzene	0.001	0.004
Toluene	0.001	0.003
Ethylbenzene	0.001	0.001
m,p Xylene	0.002	0.009
o Xylene	0.007	0.008
Total Xylene	0.009	0.017
Total BTEX	0.012	0.025

Monitor Well # 1

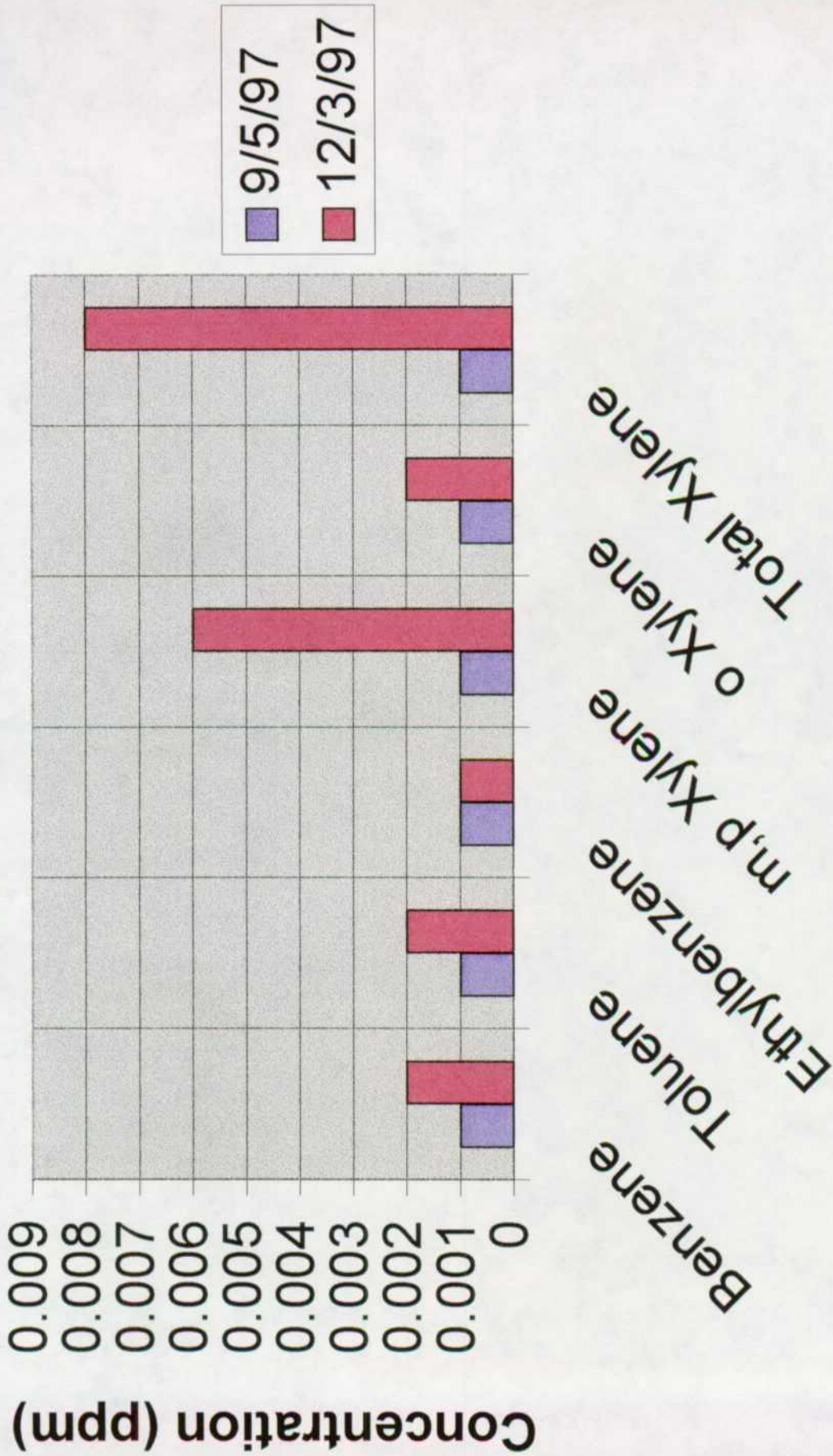


Chemical Compound

Monitor Well # 2
Iva COM
Sampling Results

Lab. #	12476	13183
Sample Date	9/5/97	12/3/97
Benzene	0.001	0.002
Toluene	0.001	0.002
Ethylbenzene	0.001	0.001
m,p Xylene	0.001	0.006
o Xylene	0.001	0.002
Total Xylene	0.001	0.008
Total BTEX	0.005	0.013

Monitor Well # 2



Chemical Compound



Iva COM # 1
Soil Sampling Results

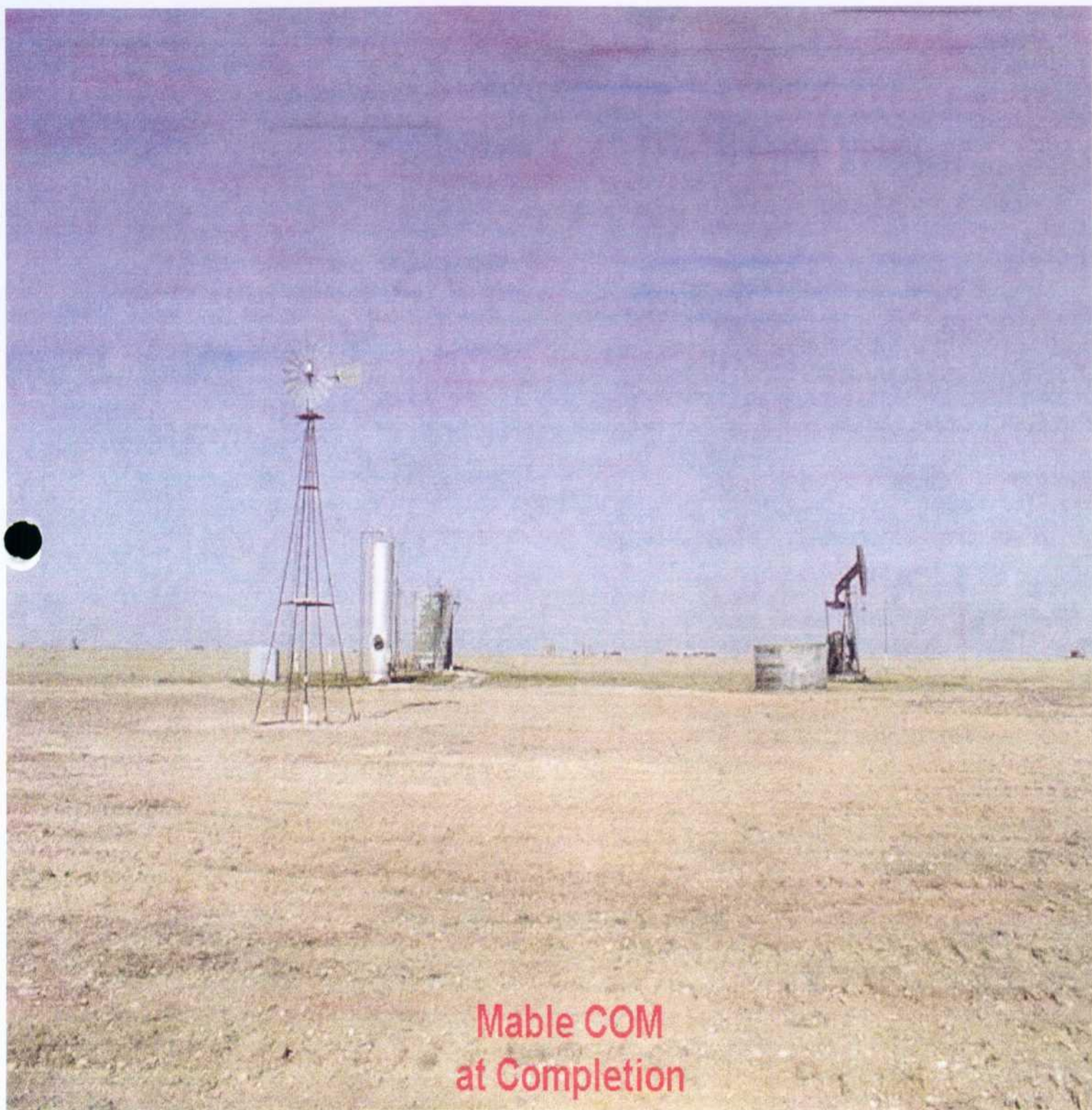
	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/14/97	8/14/97	8/14/97	8/14/97	8/20/97	8/29/97	
Date Tested	8/15/97	8/15/97	8/15/97	8/15/97	8/21/97	9/2/97	
ELT#	12094	12096	12095	12097	12098	12423	
							Allowable
Benzene	<.100	<.100	<.100	<.100	<.100	<.100	10.0
Toluene	<.100	0.579	<.100	0.249	<.100	<.100	
Ethylbenzene	<.100	0.282	<.100	<.100	<.100	<.100	
m,p Xylene	0.210	2.471	0.563	0.661	<.100	0.105	
o Xylene	0.452	1.969	0.499	0.566	<.100	<.100	
Total BTEX	0.662	5.301	1.062	1.476	ND	0.105	50.0
TPH	122	7,285	8,466	3,333	1,577	<10	10,000



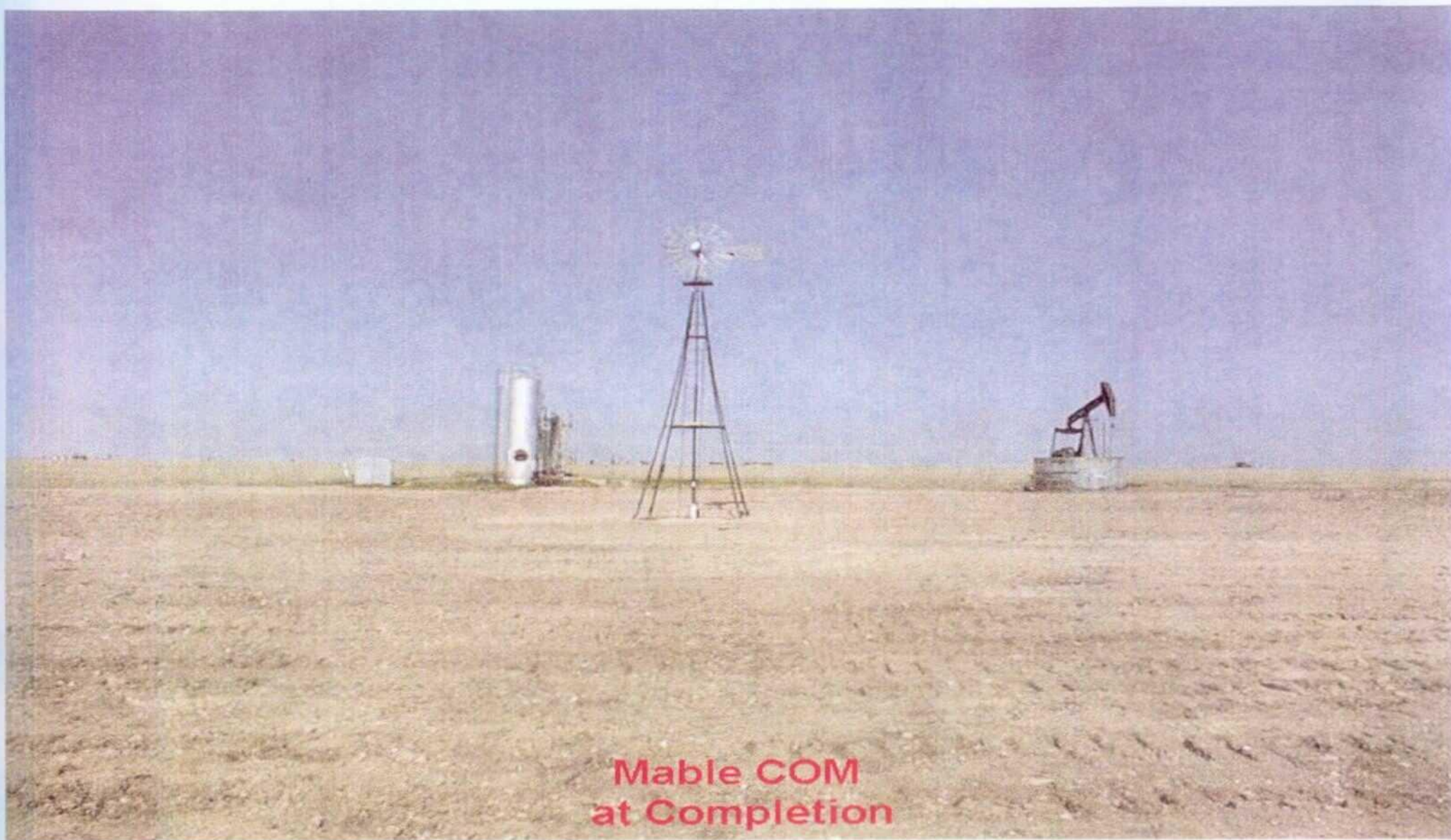
Mable COM



Mable COM

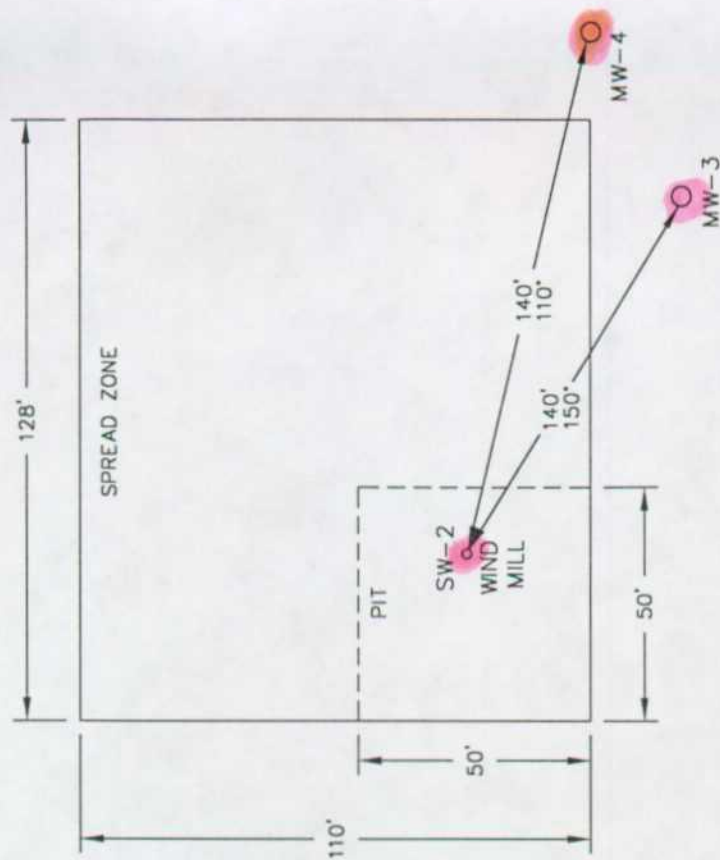
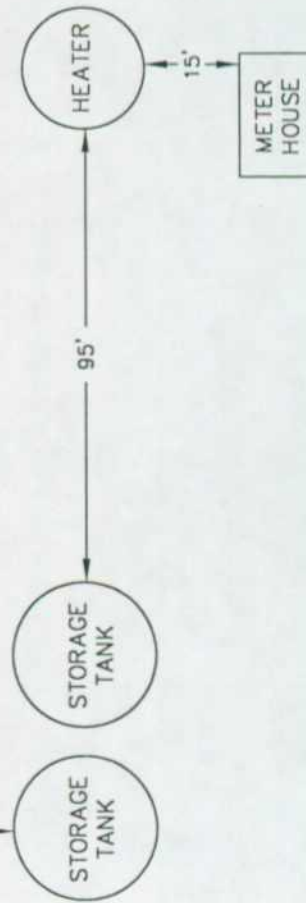
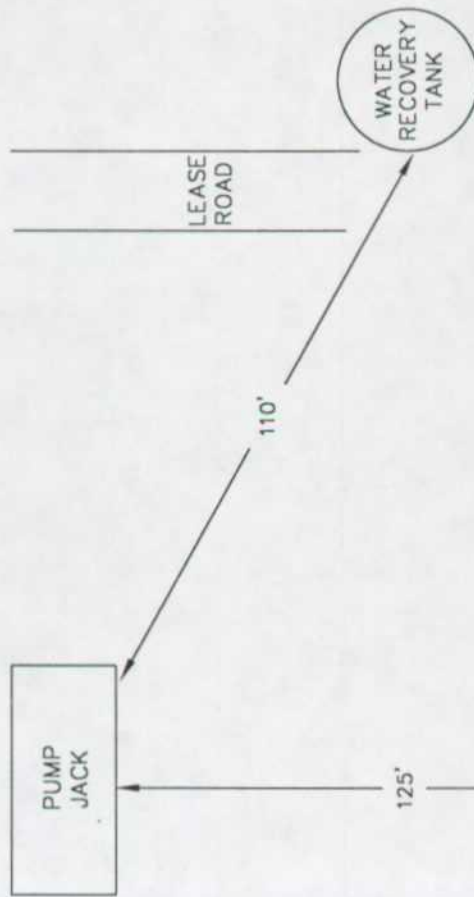
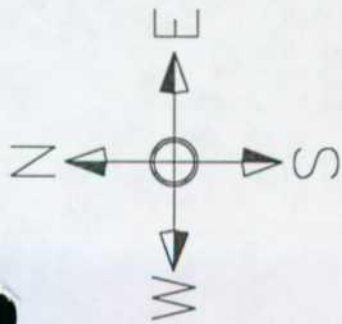


Mable COM
at Completion



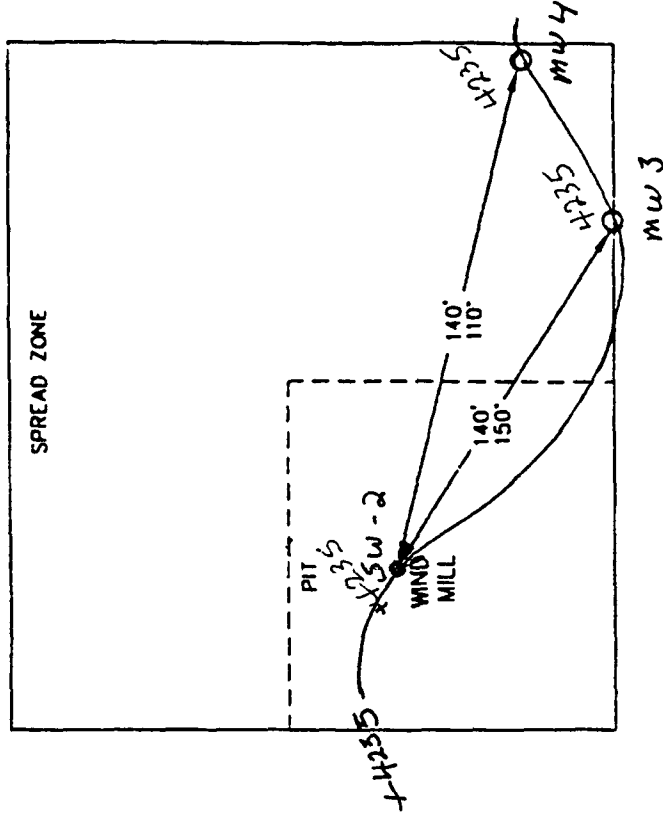
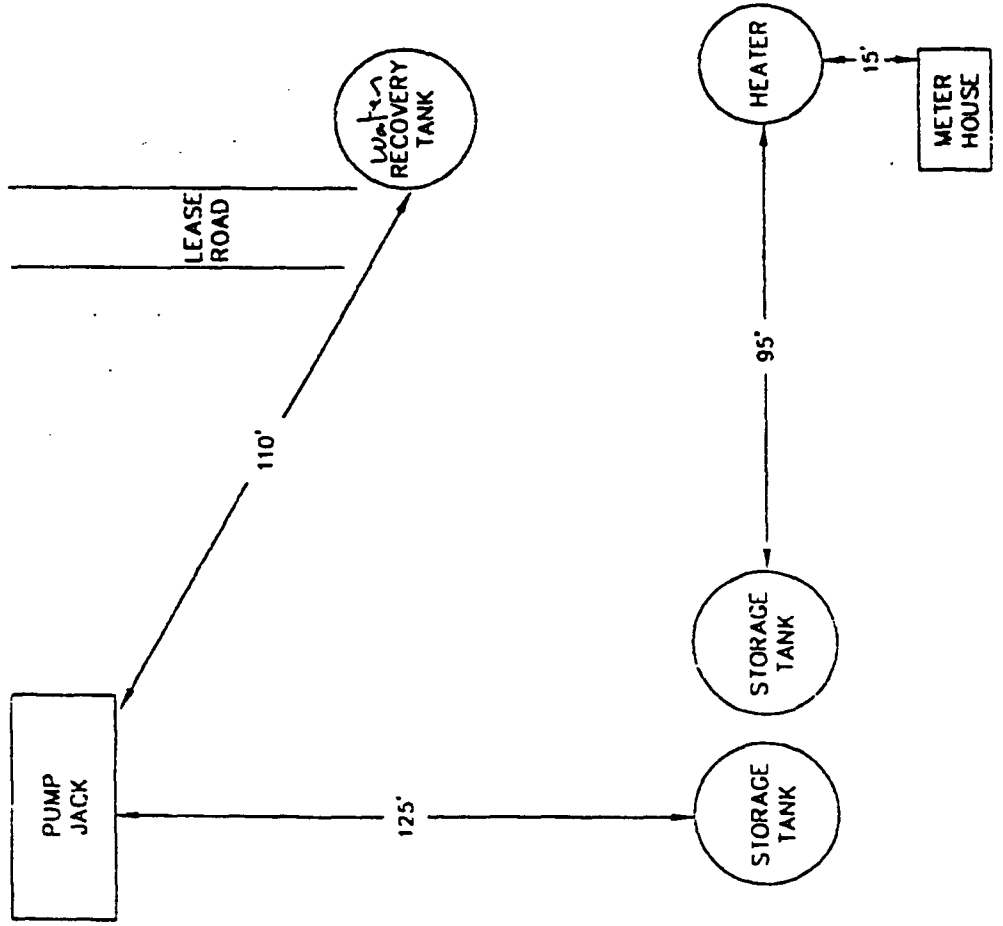
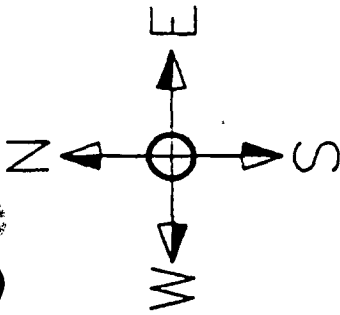
**Mable COM
at Completion**

MABLE COM.



EXCAVATED DEPTH 22'
2,037 CU. YDS.

MABLE COM.



Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3155			LOG OF BORING Mabel Com MW-1 (Page 1 of 3)		
Tipperary Oil and Gas Corporation 833 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 27, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 1030 Auger Type : Solid Stem Drill End : 1300 Logged By : Mark Bates Boring Location : Mabel Com, 150 ft. SSE of R-1		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
0	/ / / /	CL	Clay with caliche rock, tan, stiff, dry	Well: MW-1 Elev.: 8"x12" monitor well cover with 2'x2' concrete base Cap Concrete 2 in. schedule 40, pvc casing Grout
5	/ / / /	CL	Clay with caliche, tan, stiff, damp	
10	• • • •		Caliche Clay, tan, stiff, damp	
15	• • • •		Caliche Clay, sandy, tan, stiff, damp	
20	• • • •			
25	• • • •			
30	• • • •			

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Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156		LOG OF BORING Mabel Com MW-1 (Page 2 of 3)																	
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental		<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Date</td> <td style="width: 33%;">: August 27, 1997</td> <td style="width: 33%;">Site Location</td> <td style="width: 33%;">: 17 mi. W of Tatum, NM</td> </tr> <tr> <td>Drill Start</td> <td>: 1030</td> <td>Auger Type</td> <td>: Solid Stem</td> </tr> <tr> <td>Drill End</td> <td>: 1300</td> <td>Logged By</td> <td>: Mark Bates</td> </tr> <tr> <td>Boring Location</td> <td colspan="3">: Mabel Com, 150 ft. SSE of R-1</td> </tr> </table>		Date	: August 27, 1997	Site Location	: 17 mi. W of Tatum, NM	Drill Start	: 1030	Auger Type	: Solid Stem	Drill End	: 1300	Logged By	: Mark Bates	Boring Location	: Mabel Com, 150 ft. SSE of R-1		
Date	: August 27, 1997	Site Location	: 17 mi. W of Tatum, NM																
Drill Start	: 1030	Auger Type	: Solid Stem																
Drill End	: 1300	Logged By	: Mark Bates																
Boring Location	: Mabel Com, 150 ft. SSE of R-1																		

Depth in feet	GRAPHIC	USCS	DESCRIPTION
30			
35			
40			
45		CL	Silty, Sandy, Clay, tan, loose, damp
50		CL	Silty, Sandy, Clay, tan, loose, moist
55		SP	Silty Sand, tan, soft, saturated Water Level = 52 ft.
60			

Well: MW-1

Elev.:

The diagram shows a vertical borehole log. From top to bottom, it includes: Grout (stippled pattern), 2 in. schedule 40, pvc casing (dotted pattern), Bentonite Seal (hatched pattern), Sand Pack (stippled pattern), and .020 slot screen, 2 in. ID (dashed line). A water level indicator (inverted triangle) is shown at 52 ft depth within the sand pack.

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Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156			LOG OF BORING Mabel Com MW-1 (Page 3 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 27, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 1030 Auger Type : Solid Stem Drill End : 1300 Logged By : Mark Bailey Boring Location : Mabel Com. 150 ft. SSE of R-1		

Depth in feet	GRAPHIC	USCS	DESCRIPTION
60		SP	TD=66 ft. Well was baled for one hour after drilling
65			
70			
75			
80			
85			
90			

Sand Pack
 .020 slot screen, 2 in. ID

08-05-1987 s:\mydocu\wmsad\log per-1\well11.log

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156			LOG OF BORING Mabel Com MW-2 (Page 1 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 27, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 1340 Auger Type : Solid Stem Drill End : 1530 Logged By : Mort Bates Boring Location : Mabel Com, Sec. 29, 150 ft. E of R-1, 40 ft. NE of MW-1		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
0			Caliche Rock, clayey, brown, Dry	Well: MW-2 Elev.: 8'x12" monitor well cover with 2'x2' concrete base Cap Concrete 2 in. schedule 40, pvc casing Grout
5				
10				
15				
20			Caliche w/Rock, dry	
25			Sandy Clay, Tan, Loose, Dry	
30		CL		

08-25-1997 c:\myfiles\11m\schlumberger\mw2\log bor

Atkins Engineering Associates, Inc.
2904 W. 2nd St., Roswell, NM 88202-3156

Tipperary Oil and Gas Corporation
933 17th St.
Denver, CO 80202

c/o Whole Earth Environmental

LOG OF BORING Mabel Com MW-2

(Page 2 of 3)

Date : August 27, 1997

Drill Start : 1340

Drill End : 1530

Boring Location : Mabel Com, Sec. 29, 150 ft. E of R-1, 40 ft. NE of MW-1

Site Location : 17 mi. W of Tatum, NM

Auger Type : Solid Stem

Logged By : Mort Betes

Depth in feet	GRAPHIC	USCS	DESCRIPTION
30		CL	
48			
46			
45			
50		SP	Sand w/ Sil, Fine, Damp
55			
60		SM	Silty Sand, Tan, Soft, Saturated Water Level = 52 ft.

Well: MW-2

Elev.:

Grout

2 in. schedule 40, pvc casing

Bentonite Seal

Sand Pack

.020 Slot Screen, 2" ID

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Mabel Corn MW-2 (Page 3 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 27, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 1240 Auger Type : Solid Stem Drill End : 1530 Logged By : Mark Bates Boring Location : Mabel Corn, Sec. 29, 150 ft. E of R-1, 40 ft. NE of MW-1		

Depth (ft.)	GRAPHIC	USCS	DESCRIPTION	
60		SM		Well: MW-2 Elev.: Sand Pack 0.20 Slot Screen, 2" ID
65				
			TD=68 ft.	
70			Well was bailed for one hour after drilling	
75				
80				
85				
90				

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3166			LOG OF BORING Mabel Com R-1 (Page 1 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 26-27, 1997 Site Location : 17 miles W. of Tatum, NM Drill Start : 1115 (8/26/97) Auger Type : Hollow Stem Drill End : 1015 (8/27/97) Logged By : Mort Bates Boring Location : Sec. 29, Mabel Com, Center of Pit		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	Well R-1 Elev.:
0			Caliche Rock, clayey, tan, stiff, damp, backfill	
5				
10				
15				
20				
25		CL	Clay, silty, sandy, loose, tan, dry	
30				

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Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Mabel Com R-1 (Page 2 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 26-27, 1997 Site Location : 17 miles W. of Tatum, NM Drill Start : 1115 (8/26/97) Auger Type : Hollow Stem Drill End : 1015 (8/27/97) Logged By : Mort Sales Boring Location : Sec. 29, Mabel Com, Center of Plt		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	Well: R-1 Elev.:
30				
35	CL			
40			Clay, sand, loose, tan, dry	
45				
50	CL		finished 8/26/97 at 1700 began 8/27/97 at 0630 Water Level = 52 ft.	
55				
60				

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The diagram shows a vertical well casing. From top to bottom, the components are: Grout (stippled pattern), 4 in. schedule 40, pvc casing (dotted pattern), Bentonite Seal (hatched pattern), Sand Pack (stippled pattern), and .032 slot screen, 4 in. ID (dotted pattern with horizontal lines). A water level indicator is shown at 52 ft depth.

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Mabel Com R-1 (Page 3 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 26-27, 1997 Site Location : 17 miles W. of Tatum, NM Drill Start : 1115 (8/26/97) Auger Type : Hollow Stem Drill End : 1015 (8/27/97) Logged By : Mori Bates Boring Location : Sec. 29, Mabel Com, Center of P11		

Depth in feet	GRAPHIC	USCS	DESCRIPTION
60		CL	TD=60 ft. Pumped well for 2.5 hours. Maximum pumping rate = 10 gpm Steady pumping rate = 5 gpm for 1 hour Drawdown = 6.5 ft.
65			
70			
75			
80			
85			
90			

Well R-1
Elev.:

09-05-1997 c:\mori\atkins\logbook\mabelc1.bor



Mable COM # 1
Water Sampling Results

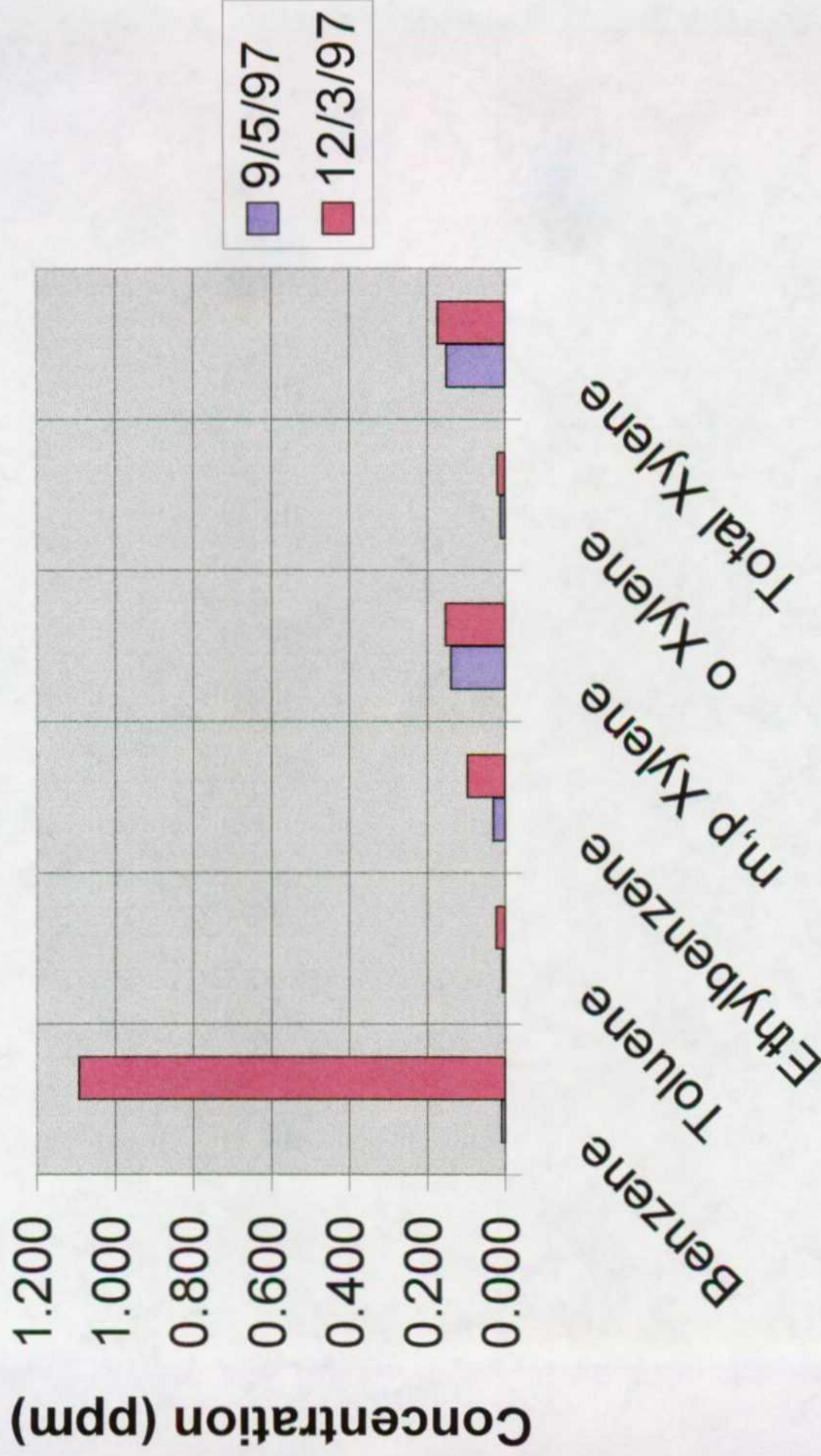
Sample I.D. (Lab)	ELT 12488	ELT 12489	ELT 12720	New Mexico WQCC Allowable Concentrations
Date Sampled	9/5/97	9/5/97	10/2/97	
Date Analyzed	9/9/97	9/9/97	10/5/97	
Source I.D.	M.W. # 3	M.W. # 4	SW # 2	

BTEX				
Benzene	0.010	0.015	0.756	0.010
Toluene	0.008	0.002	0.694	0.750
Ethylbenzene	0.031	0.002	0.140	0.750
m,p xylene	0.139	0.010	1.087	
o xylene	0.012	0.002	0.843	
(Ttl. Xylene)	0.151	0.012	1.930	0.620

Monitor Well # 3
Mable COM
Sampling Results

Lab. #	12488	13177
Sample Date	9/5/97	12/3/97
Benzene	0.010	1.093
Toluene	0.008	0.024
Ethylbenzene	0.031	0.097
m,p Xylene	0.139	0.153
o Xylene	0.012	0.02
Total Xylene	0.151	0.173
Total BTEX	0.200	1.387

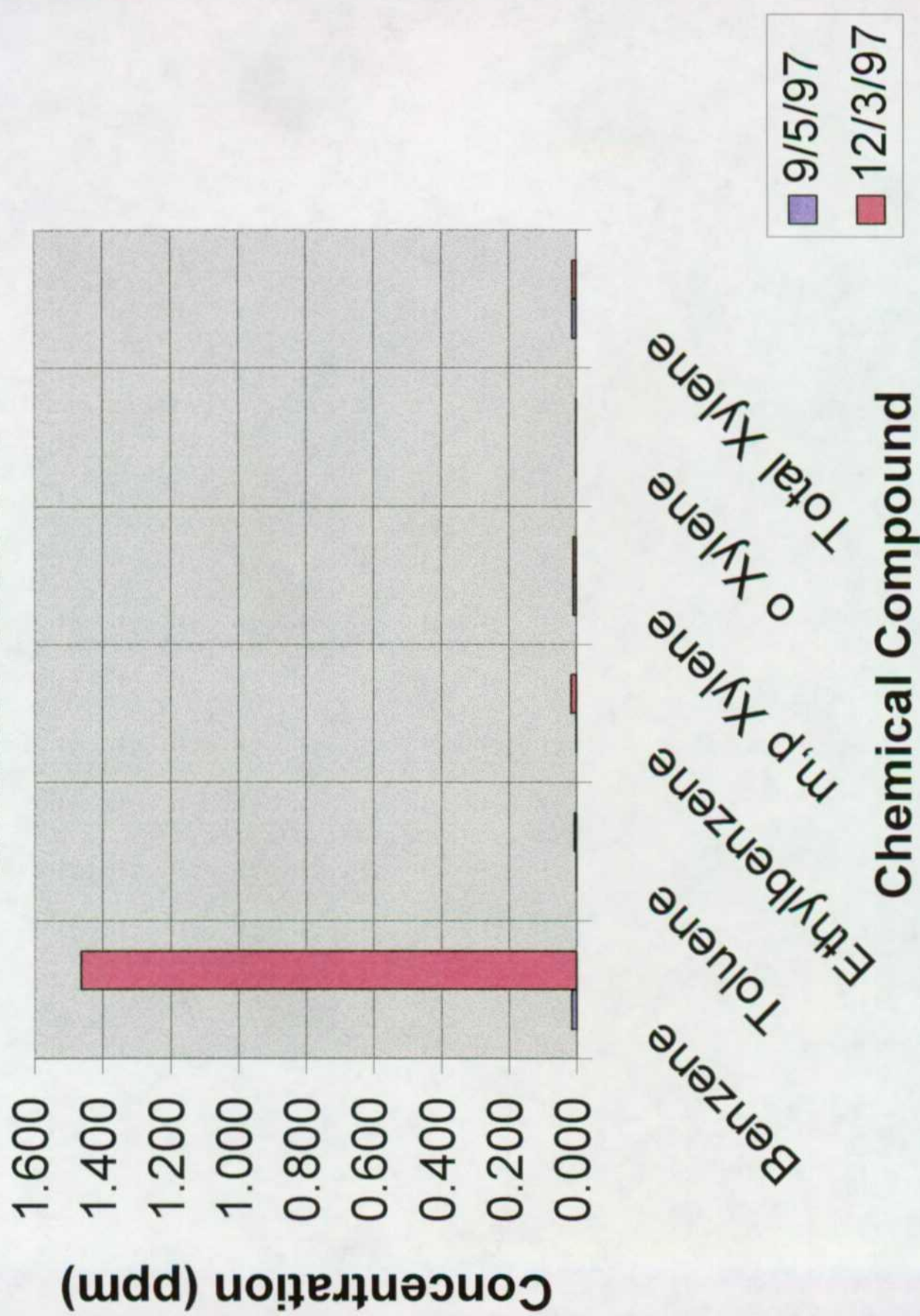
Monitor Well # 3



Monitor Well # 4
Mable COM
Sampling Results

Lab. #	12489	13178
Sample Date	9/5/97	12/3/97
Benzene	0.015	1.465
Toluene	0.002	0.007
Ethylbenzene	0.002	0.017
m,p Xylene	0.010	0.01
o Xylene	0.002	0.002
Total Xylene	0.012	0.012
Total BTEX	0.031	1.501

Monitor Well # 4



ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

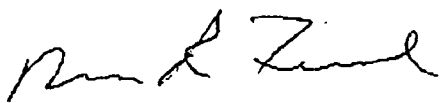
TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4358

Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13174	NBN MW-7	0.017	0.002	<0.001	0.001	0.002
13175	NBF MW-8	0.051	0.007	0.012	0.047	0.009
13176	NBF MW-16	0.234	0.003	0.004	0.012	0.003
13177	MABLE COM. MW-3	1.093	0.024	0.097	0.153	0.020
13178	MABLE COM. MW-4	1.465	0.007	0.017	0.010	0.002
13179	BELL A MW-G	0.029	0.004	0.002	0.030	0.003
13180	BELL A MW-13	0.002	0.001	<0.001	0.005	0.001
13181	BELL A MW-14	1.147	0.007	0.017	0.010	0.002
13182	IVA COM. MW-1	0.004	0.003	0.001	0.009	0.008
13183	IVA COM. MW-2	0.002	0.002	0.001	0.006	0.002
% IA		93	93	93	92	95
% EA		101	101	103	102	104
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020.5030


Michael R. Fowler

12-5-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/08/97
Sample Type: WATER
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 09/09/97
Sampling Date: 09/05/97, 09/06/97
Sample Condition: Intact/Ice

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12475	IVA COM MW#1	<.001	<.001	<.001	0.002	0.007
12476	IVA COM MW#2	<.001	<.001	<.001	<.001	<.001
12477	IVA COM SW	3.129	2.551	0.209	1.182	0.094
12478	GS #12	1.834	0.055	0.061	3.085	0.084
12481	BELL #6	0.687	0.013	0.024	0.060	0.006
12482	NBN #7	<.001	<.001	<.001	<.001	<.001
12483	SOHIO 1 #10	2.559	1.148	0.243	1.257	0.081
12484	SOHIO A #11	0.096	0.004	0.002	0.008	0.012
12485	SAT 4 #9	0.092	0.010	0.015	0.082	0.002
12486	NBF #8	0.302	0.208	0.039	0.253	0.161
12487	VERA #5	0.003	0.003	0.005	0.021	0.029
12488	MABLE MW #3	0.010	0.008	0.031	0.139	0.012
12489	MABLE MW #4	0.015	0.002	0.002	0.010	0.002
% IA		111	111	112	111	113
% EA		113	112	114	112	111
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020, 5030



Michael R. Fowler

9-10-97

Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020.5030


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

411 copies

Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date



Mable COM # 1
Soil Sampling Results

	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/14/97	8/20/97	8/14/97	8/14/97	8/14/97	8/29/97	
Date Tested	8/15/97	8/21/97	8/15/97	8/15/97	8/15/97	9/2/97	
ELT#	12099	12250	12100	12102	12103	12422	
							Allowable
Benzene	<.100	<.100	<.100	<.100	<.100	<.100	10.0
Toluene	<.100	1.657	<.100	<.100	0.194	0.165	
Ethylbenzene	<.100	0.444	<.100	<.100	<.100	0.129	
m,p Xylene	0.164	3.185	<.100	<.100	0.329	0.255	
o Xylene	<.100	3.531	<.100	<.100	0.192	<.100	
Total BTEX	0.164	8.817	ND	ND	0.715	0.549	50.0
TPH	37	7,398	<10	11	30	11	10,000

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<.100	<.100	<.100	0.105	<.100	<10
12422	MABLE FINAL	<.100	0.165	0.129	0.255	<.100	11
12423	VERA FINAL	<.100	0.126	<.100	0.192	<.100	10
12424	BELL FINAL	<.100	<.100	<.100	<.100	<.100	24
12425	NBN FINAL	<.100	<.100	<.100	<.100	<.100	103
12426	NBF FINAL	<.100	<.100	<.100	<.100	<.100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6,702
12428	SOHIO 1 FINAL	<.100	0.373	0.142	0.463	0.342	15,016
12429	G.S. FINAL	<.100	<.100	<.100	<.100	<.100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<.100	<.100	<.100	0.217	0.166	2,963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SW 846-8020, 5030, 8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

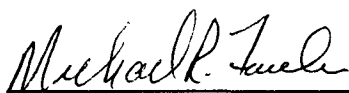
23 copies

Receiving Date: 08/14/97
Sample Type: SOIL
Project: TIPPERARY PIT CLOSURE
Project Location: TATUM, NEW MEXICO

Analysis Date: BTEX 08/14/97
Analysis Date: DRO 08/15/97
Sampling Date: 08/14/97
Sample Condition: Intact/lced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12094	IVA NORTH	<.100	<.100	<.100	0.210	0.452	6.227
12095	IVA SOUTH	<.100	<.100	<.100	0.563	0.499	8.466
12096	IVA EAST	<.100	0.579	0.282	2.471	1.969	7.285
12097	IVA WEST	<.100	0.249	<.100	0.661	0.566	3.333
12098	IVA BOTTOM	<.100	0.808	0.426	4.286	1.827	12.795
12099	MABLE NORTH	<.100	<.100	<.100	0.164	<.100	37
12100	MABLE SOUTH	<.100	<.100	<.100	<.100	<.100	<10
12101	MABLE EAST	0.137	3.466	2.124	10.297	6.111	10,599
12102	MABLE WEST	<.100	<.100	<.100	<.100	<.100	11
12103	MABLE BOTTOM	<.100	0.194	<.100	0.329	0.192	30
12104	SOHIO	<.100	<.100	<.100	<.100	<.100	14
% IA		91	87	89	84	91	98
% EA		89	86	88	83	91	100
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL

ATTN: MR. MIKE GRIFFIN

19606 SAN GABRIEL

HOUSTON, TEXAS 77084

FAX: 1-281-646-8996

23 copies

Receiving Date: 08/21/97

Sample Type: SOIL

Project: TIPPERARY

Project Location: NONE GIVEN

Analysis Date: BTEX 08/21/97

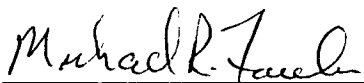
Analysis Date: DRO 08/22/97

Sampling Date: 08/20/97

Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12249	NBF BOTM	<.100	<.100	<.100	0.390	0.247	3,547
12250	MABLE EAST (RE-TEST)	<.100	1.657	0.444	3.185	3.531	7,398
12251	BELL NORTH	<.100	0.841	0.376	1.917	2.475	5,746
12252	BELL SOUTH	<.100	<.100	<.100	0.18	<.100	<10
12253	BELL EAST	<.100	<.100	<.100	<.100	<.100	163
12254	BELL WEST	<.100	<.100	<.100	<.100	<.100	147
12255	BELL BOTTOM	<.100	0.186	<.100	0.250	0.391	3,951
12256	VERA NORTH	<.100	<.100	<.100	<.100	<.100	122
12257	VERA SOUTH	<.100	<.100	<.100	0.200	0.279	10
12258	VERA EAST	<.100	<.100	<.100	<.100	<.100	2,302
12259	VERA WEST	<.100	<.100	<.100	<.100	<.100	571
12260	VERA BOTTOM	<.100	<.100	<.100	<.100	<.100	89
% IA		93	88	89	86	88	108
% EA		111	104	100	96	100	100
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020.5030.8015m DRO

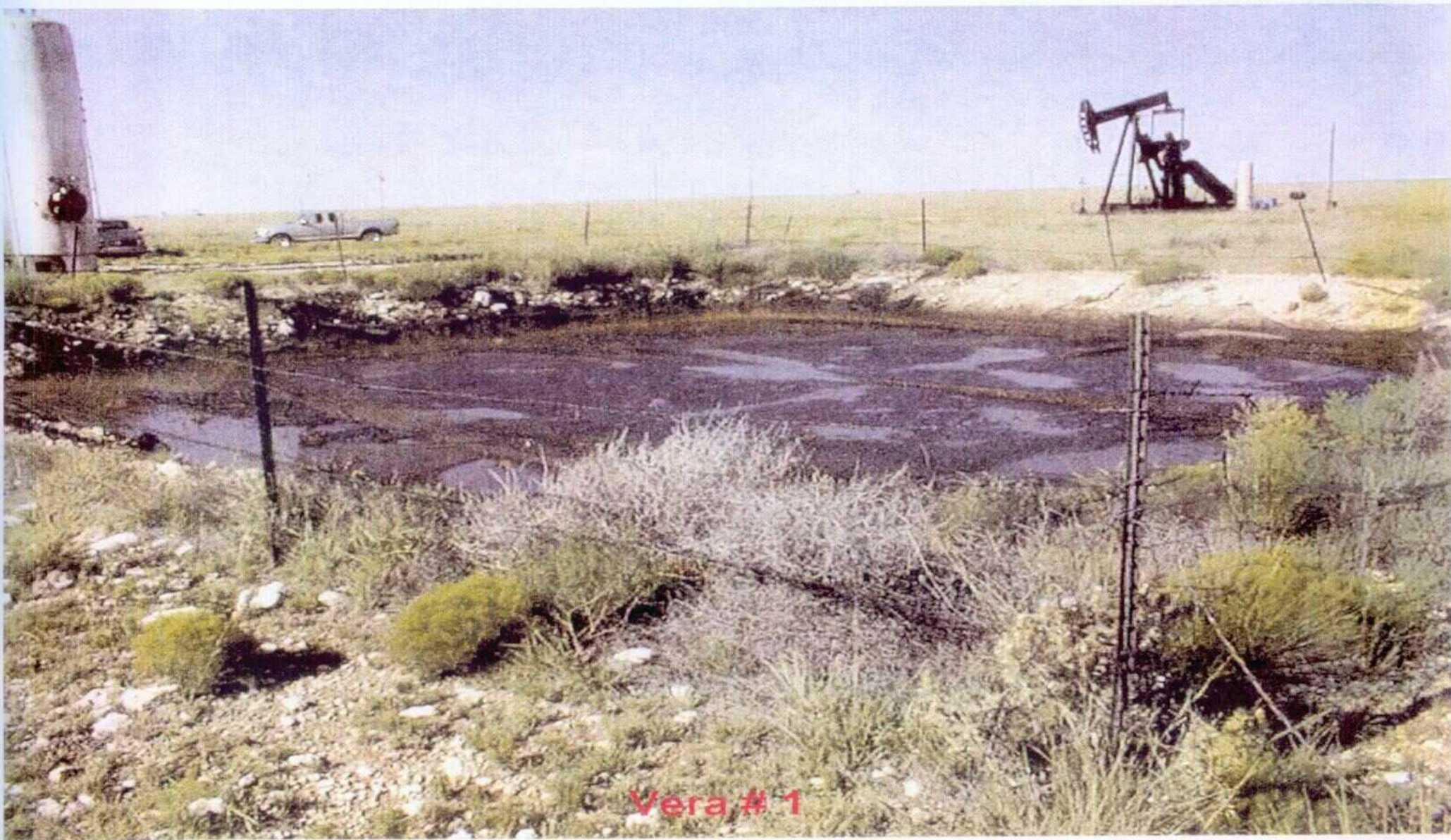


Michael R. Fowler

10-2797
Date



Vera # 1



Vera # 1



Vera # 1



Vera # 1



Vera #1 at
Maximum Excavation



Vera #1 at
Maximum Excavation

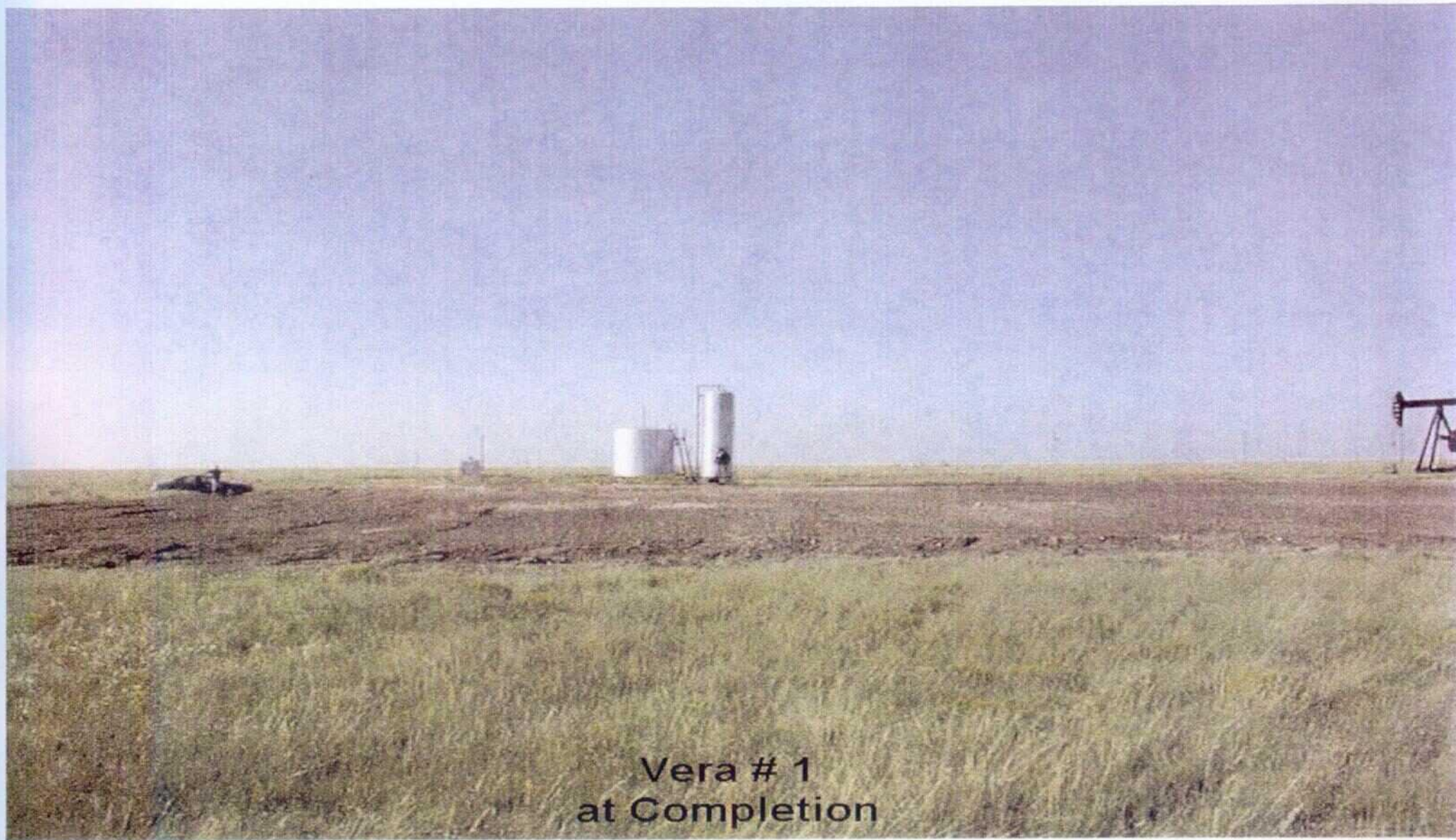


Vera #1
Liner Detail



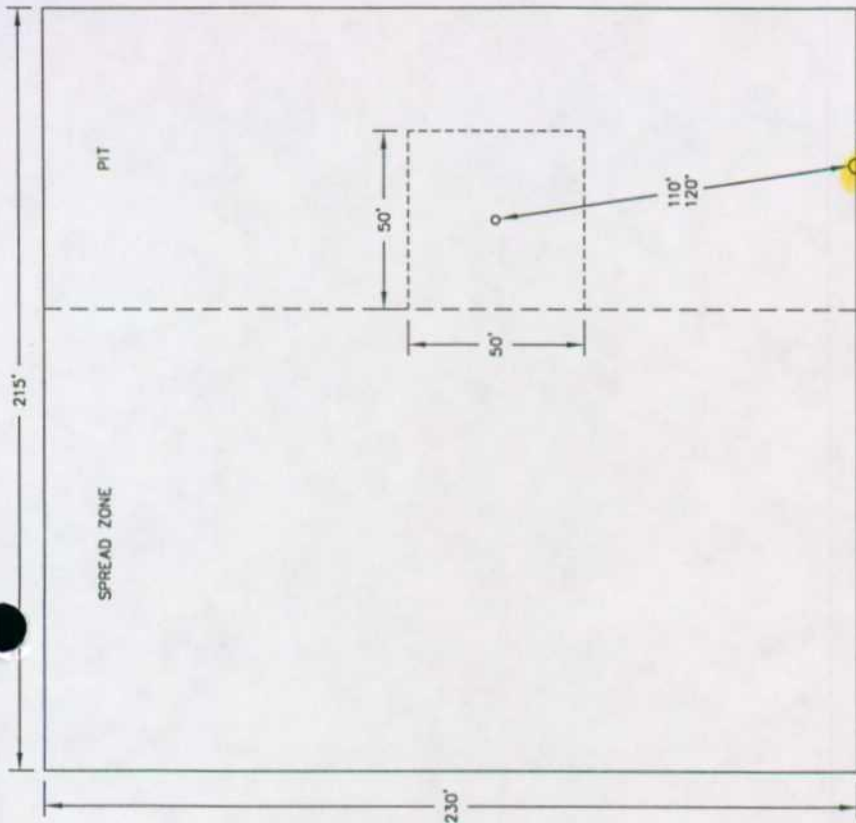
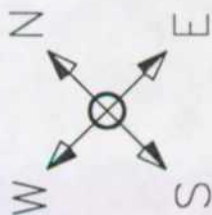


Vera #1
at Completion



Vera # 1
at Completion

VERA



EXCAVATED DEPTH 21'
1,944 CU. YDS.

HEATER

85'

PUMP
JACK

195'

STORAGE
TANK

W-5

110'

120'

50'

230'

215'

SPREAD ZONE

PIT

Atkins Engineering Associates, Inc. 2904 W. 2nd St. Roswell, NM 88202-3156			LOG OF BORING Vera MW-1 (Page 1 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 28, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 0800 Auger Type : Solid Stem Drill End : 1030 Logged By : Mori Bates Boring Location : Vera, Sec 32, 45 ft. SE of Center Pt		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
0			Caliche Rock, clayey, brown, hard to stiff, dry	Well: MW-1 Elev.: 8"x12" monitor well cover with 2'x2' concrete base Cap Concrete 2 in. schedule 40, pvc casing Grout
5			Caliche Rock, clayey, tan, hard, dry	
10		CL	Caliche Clay, tan, stiff, damp	
15			Caliche w/small rock, clayey, tan, stiff, damp	
20				
25				
30				

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Vera MW-1 (Page 2 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 28, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 0800 Auger Type : Solid Stem Drill End : 1030 Logged By : Mort Bates Boring Location : Vera, Sec 32, 45 N. SE of Center PM		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
30				
35			Silty Caliche, clay, sand, tan, soft, damp	
40				
45				
50			Silty, Sandy, Clay, tan, soft, damp	
55		CL		
60				

Well: MW-1
Elev.:

Grout

2 in. schedule 40, pvc casing

Bentonite Seal

Sand Pack

.020 slot screen, 2 in. ID

08-05-1997 c:\mwdoc\1-Tipperary-1\well log

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156			LOG OF BORING Vera MW-1 (Page 3 of 3)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 28, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 0800 Auger Type : Solid Stem Drill End : 1030 Logged By : Mori Bales Boring Location : Vore, Sec 32, 46 ft. SE of Center Pt		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
60		CL		Well: MW-1 Elev.: 
65			Sandy Clay, tan, soft, saturated Water Level = 63 ft.	
70		CL		
75			Well was baled for one hour after drilling	
80				
85				
90				

08-05-1997 c:\mydocr\1\muck\pawar-1\well11.bol



Vera # 1
Water Sampling Results

Sample I.D. (Lab)	ELT 12487	New Mexico WQCC Allowable Concentrations
Date Sampled	9/5/97	
Date Analyzed	9/9/97	
Source I.D.	M.W. # 5	

BTEX		
Benzene	0.003	0.010
Toluene	0.002	0.750
Ethylbenzene	0.002	0.750
m,p xylene	0.010	
o xylene	0.002	
(Ttl. Xylene)	0.012	0.620

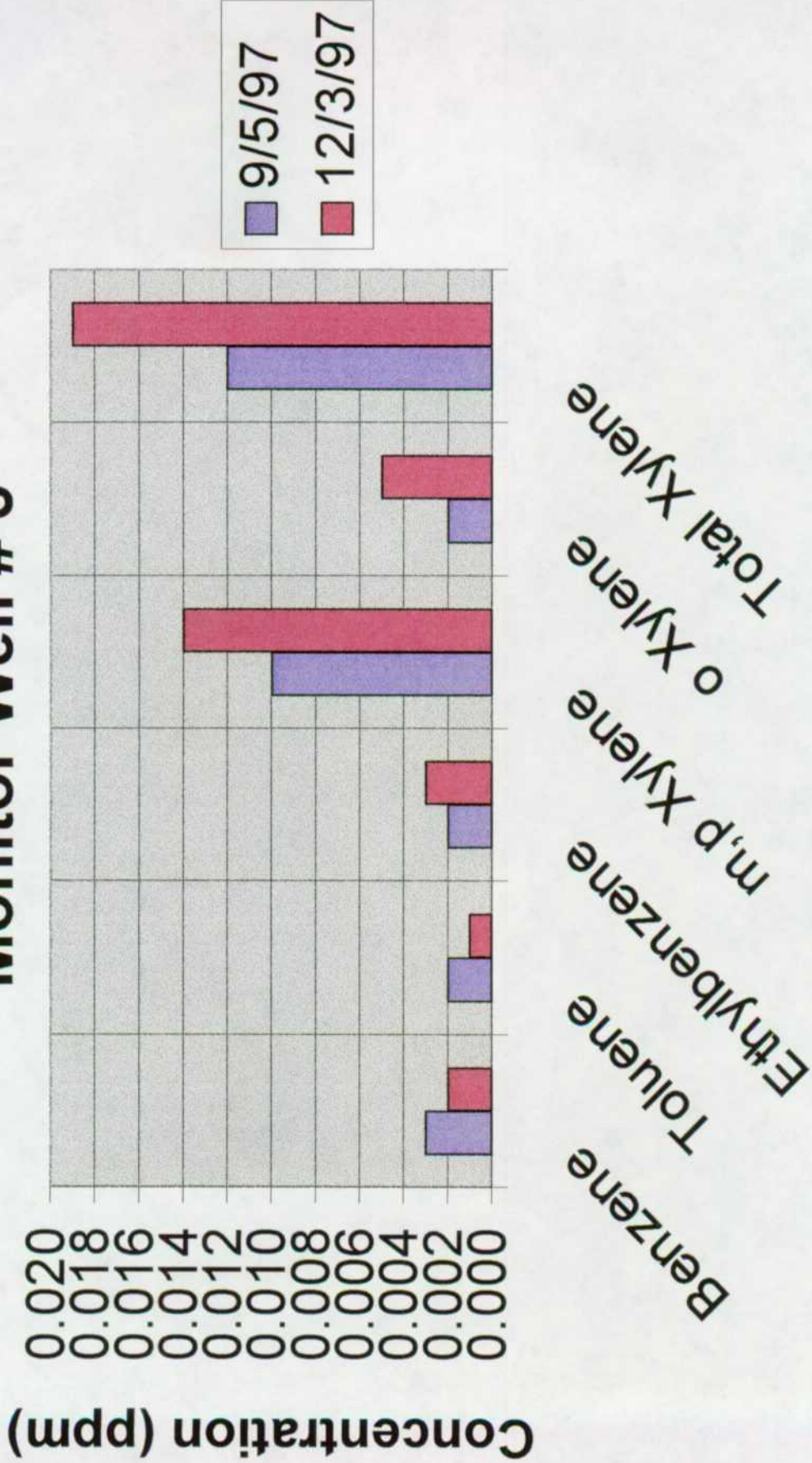
Monitor Well # 5

Vera # 1

Sampling Results

Lab. #	12487	13184
Sample Date	9/5/97	12/3/97
Benzene	0.003	0.002
Toluene	0.002	0.001
Ethylbenzene	0.002	0.003
m,p Xylene	0.010	0.014
o Xylene	0.002	0.005
Total Xylene	0.012	0.019
Total BTEX	0.019	0.025

Monitor Well # 5



Chemical Compound

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4358

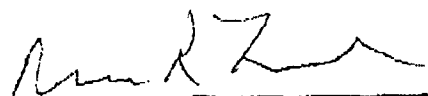
Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13184	VERA MW-5	0.002	0.001	0.003	0.014	0.005
13185	G.S. STATE MW-21	0.166	0.013	0.059	0.705	0.010
13186	SOHIO STATE "1" MW-10	2.148	0.082	0.173	0.930	0.313
13187	SOHIO STATE "1" MW-17	1.409	0.053	0.116	0.535	0.192
13188	SOHIO STATE "1" MW-18	2.063	0.178	0.118	<0.001	<0.001
13189	SOHIO STATE "A" MW-19	0.009	0.002	0.003	0.541	0.318
13190	SOHIO STATE "A" MW-20	0.284	0.005	0.008	0.044	0.004
13191	SAT "4" MW-9	0.067	0.009	0.006	0.033	0.008
13192	SAT "4" MW-23	0.040	0.012	0.009	0.042	0.019
13193	SAT "4" MW-24	0.017	0.006	0.005	0.025	0.011

% IA	93	93	93	92	95
% EA	101	101	103	102	104
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

12-5-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/08/97
Sample Type: WATER
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 09/09/97
Sampling Date: 09/05/97, 09/06/97
Sample Condition: Intact/Ice

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12475	IVA COM MW#1	<.001	<.001	<.001	0.002	0.007
12476	IVA COM MW#2	<.001	<.001	<.001	<.001	<.001
12477	IVA COM SW	3.129	2.551	0.209	1.182	0.094
12478	GS #12	1.834	0.055	0.061	3.085	0.084
12481	BELL #6	0.687	0.013	0.024	0.060	0.006
12482	NBN #7	<.001	<.001	<.001	<.001	<.001
12483	SOHIO 1 #10	2.559	1.148	0.243	1.257	0.081
12484	SOHIO A #11	0.096	0.004	0.002	0.008	0.012
12485	SAT 4 #9	0.092	0.010	0.015	0.082	0.002
12486	NBF #8	0.302	0.208	0.039	0.253	0.161
12487	VERA #5	0.003	0.003	0.005	0.021	0.029
12488	MABLE MW #3	0.010	0.008	0.031	0.139	0.012
12489	MABLE MW #4	0.015	0.002	0.002	0.010	0.002
% IA		111	111	112	111	113
% EA		113	112	114	112	111
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

9-10-97
Date



Vera # 1
Soil Sampling Results

	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/20/97	8/20/97	8/20/97	8/20/97	8/20/97	8/29/97	
Date Tested	8/21/97	8/21/97	8/21/97	8/21/97	8/21/97	9/2/97	
ELT#	12556	12558	12557	12259	12260	12423	
							Allowable
Benzene	<.100	<.100	<.100	<.100	<.100	<.100	10.0
Toluene	<.100	<.100	<.100	<.100	<.100	0.128	
Ethylbenzene	<.100	<.100	<.100	<.100	<.100	<.100	
m,p Xylene	<.100	<.100	0.200	<.100	<.100	0.192	
o Xylene	<.100	<.100	0.279	<.100	<.100	<.100	
Total BTEX	ND	ND	0.479	ND	ND	0.320	50.0
TPH	122	2,302	10	571	89	103	10,000

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<.100	<.100	<.100	0.105	<.100	<10
12422	MABLE FINAL	<.100	0.165	0.129	0.255	<.100	11
12423	VERA FINAL	<.100	0.126	<.100	0.192	<.100	10
12424	BELL FINAL	<.100	<.100	<.100	<.100	<.100	24
12425	NBN FINAL	<.100	<.100	<.100	<.100	<.100	103
12426	NBF FINAL	<.100	<.100	<.100	<.100	<.100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6.702
12428	SOHIO 1 FINAL	<.100	0.373	0.142	0.463	0.342	15.016
12429	G.S. FINAL	<.100	<.100	<.100	<.100	<.100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<.100	<.100	<.100	0.217	0.166	2.963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SW 846-8020, 5030, 8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL

ATTN: MR. MIKE GRIFFIN

19606 SAN GABRIEL

HOUSTON, TEXAS 77084

FAX: 1-281-646-8996

23 copies

Receiving Date: 08/21/97

Sample Type: SOIL

Project: TIPPERARY

Project Location: NONE GIVEN

Analysis Date: BTEX 08/21/97

Analysis Date: DRO 08/22/97

Sampling Date: 08/20/97

Sample Condition: Intact/Iced

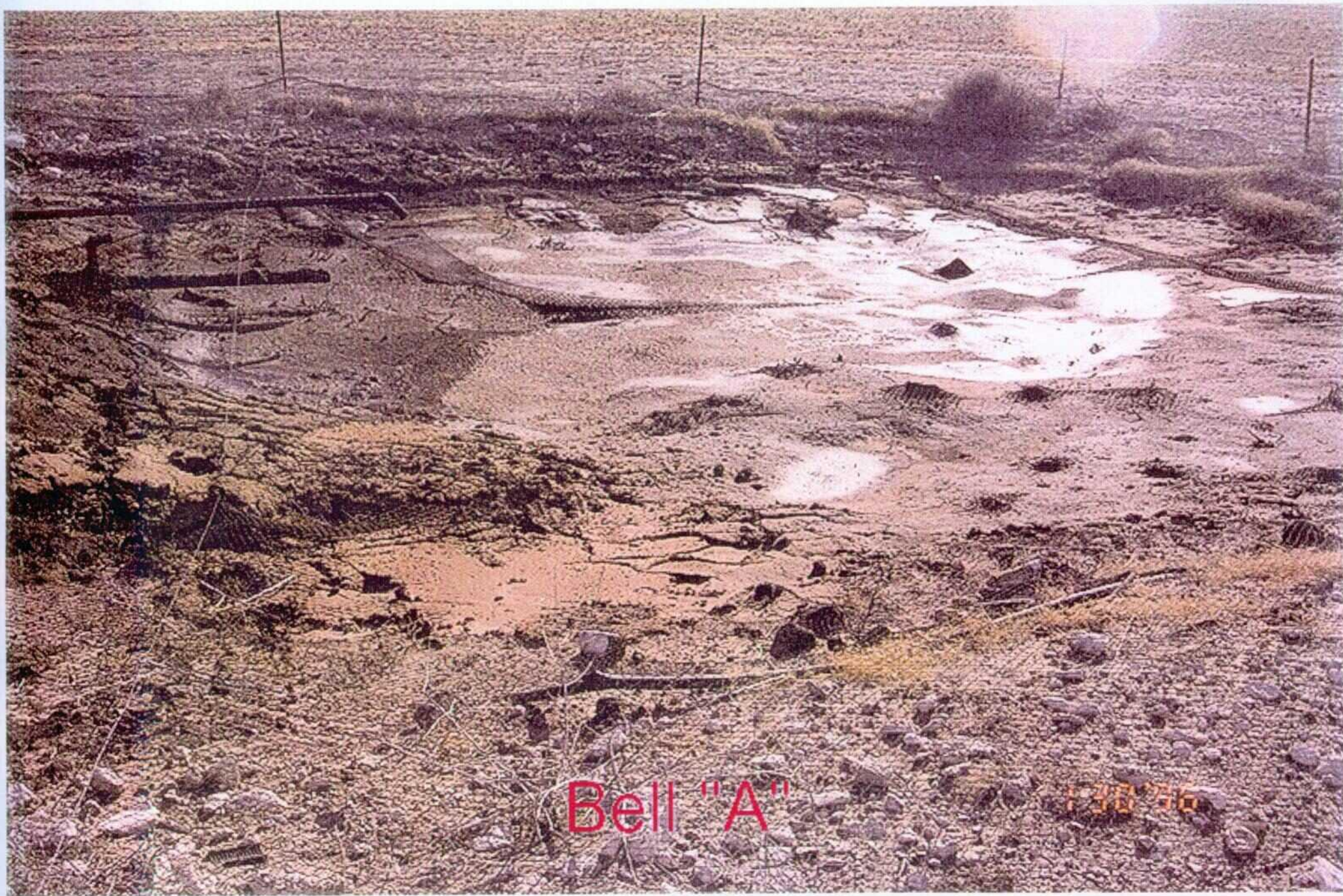
ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12249	NBF BOTM	<.100	<.100	<.100	0.390	0.247	3.547
12250	MABLE EAST (RE-TEST)	<.100	1.657	0.444	3.185	3.531	7.398
12251	BELL NORTH	<.100	0.841	0.376	1.917	2.475	5.746
12252	BELL SOUTH	<.100	<.100	<.100	0.18	<.100	<10
12253	BELL EAST	<.100	<.100	<.100	<.100	<.100	163
12254	BELL WEST	<.100	<.100	<.100	<.100	<.100	147
12255	BELL BOTTOM	<.100	0.186	<.100	0.250	0.391	3.951
12256	VERA NORTH	<.100	<.100	<.100	<.100	<.100	122
12257	VERA SOUTH	<.100	<.100	<.100	0.200	0.279	10
12258	VERA EAST	<.100	<.100	<.100	<.100	<.100	2,302
12259	VERA WEST	<.100	<.100	<.100	<.100	<.100	571
12260	VERA BOTTOM	<.100	<.100	<.100	<.100	<.100	89
% IA		93	88	89	86	88	108
% EA		111	104	100	96	100	100
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO



Michael R. Fowler

10-2797
Date

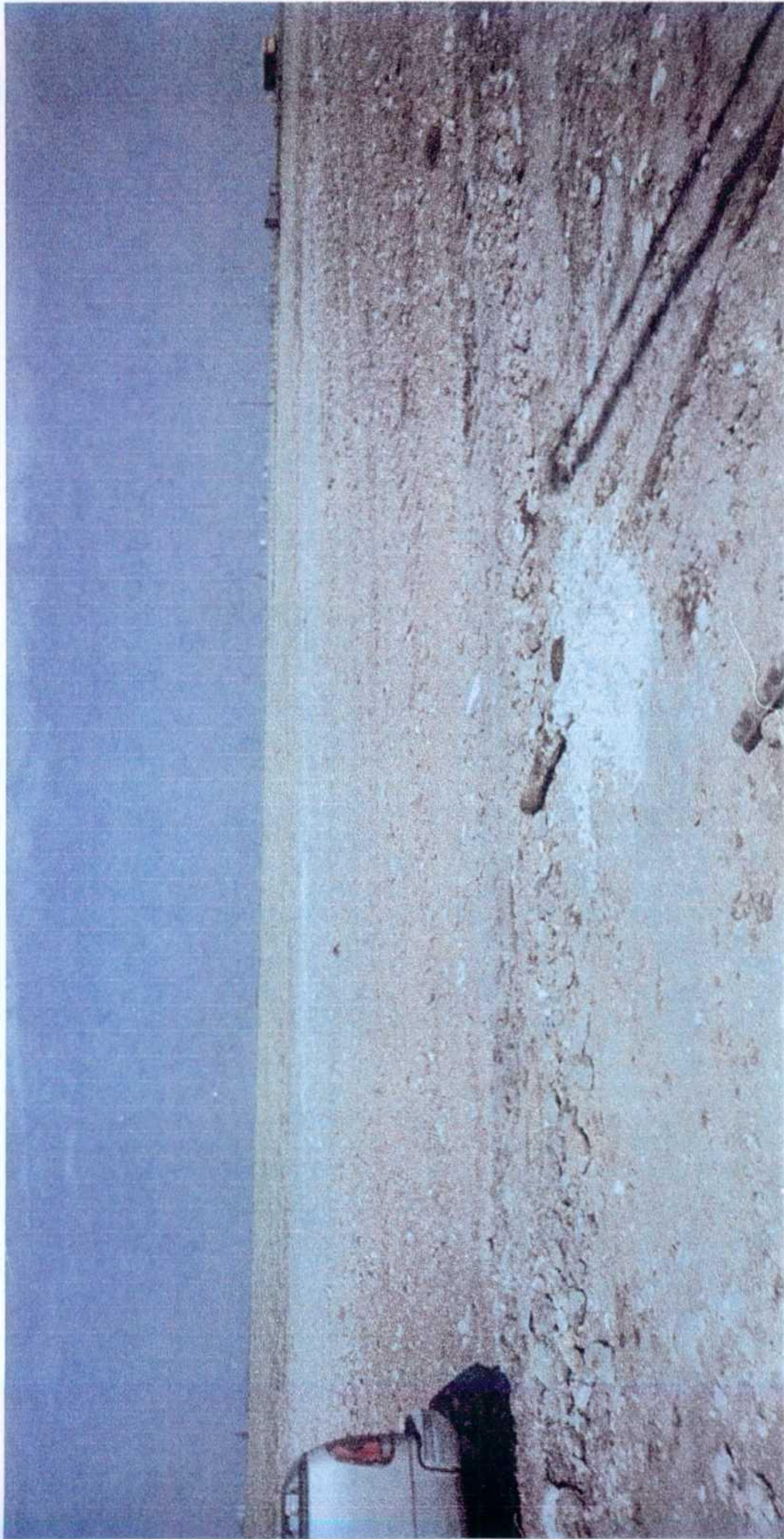


Bell "A"

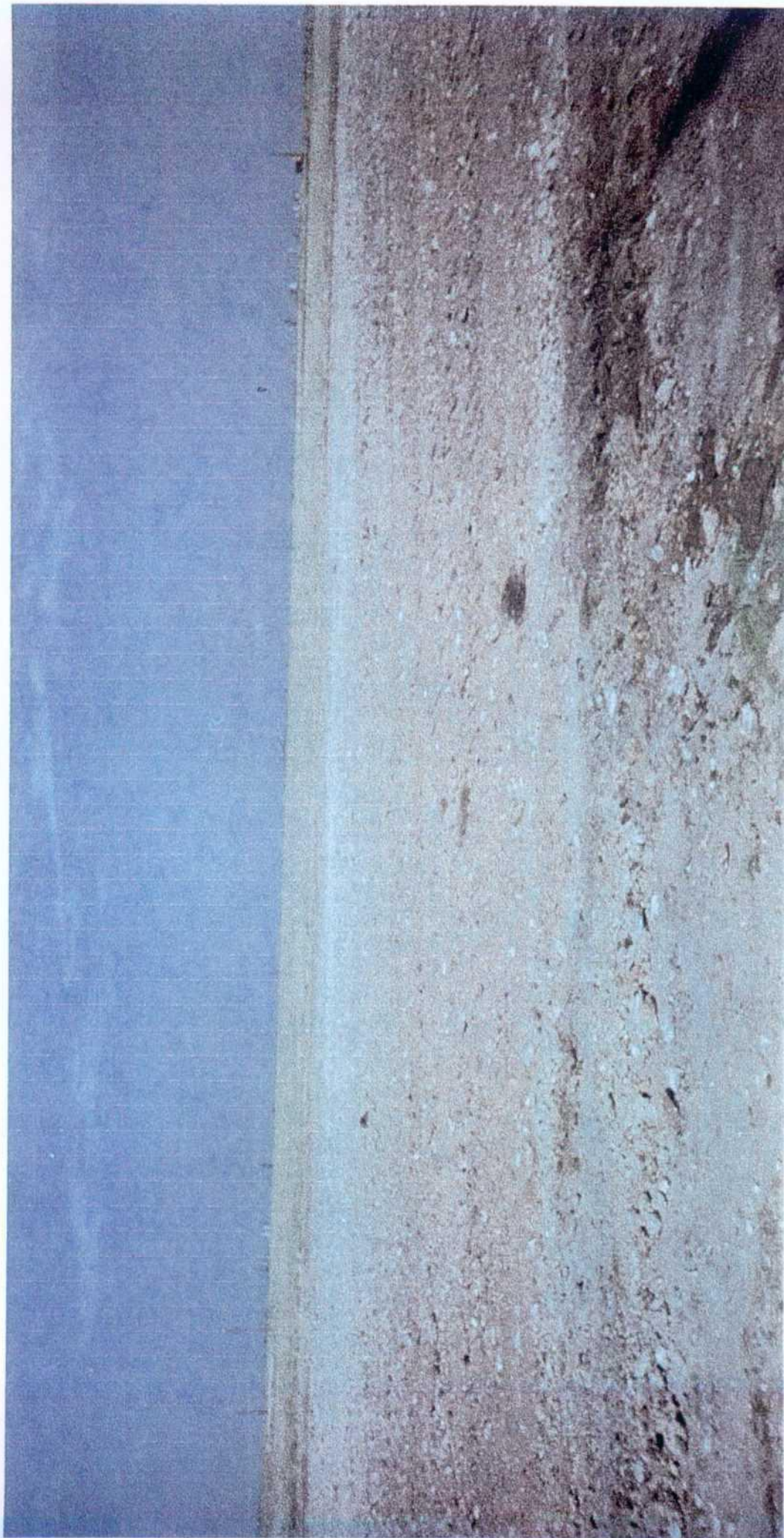
13836



Bell State "A"
at Maximum Excavation



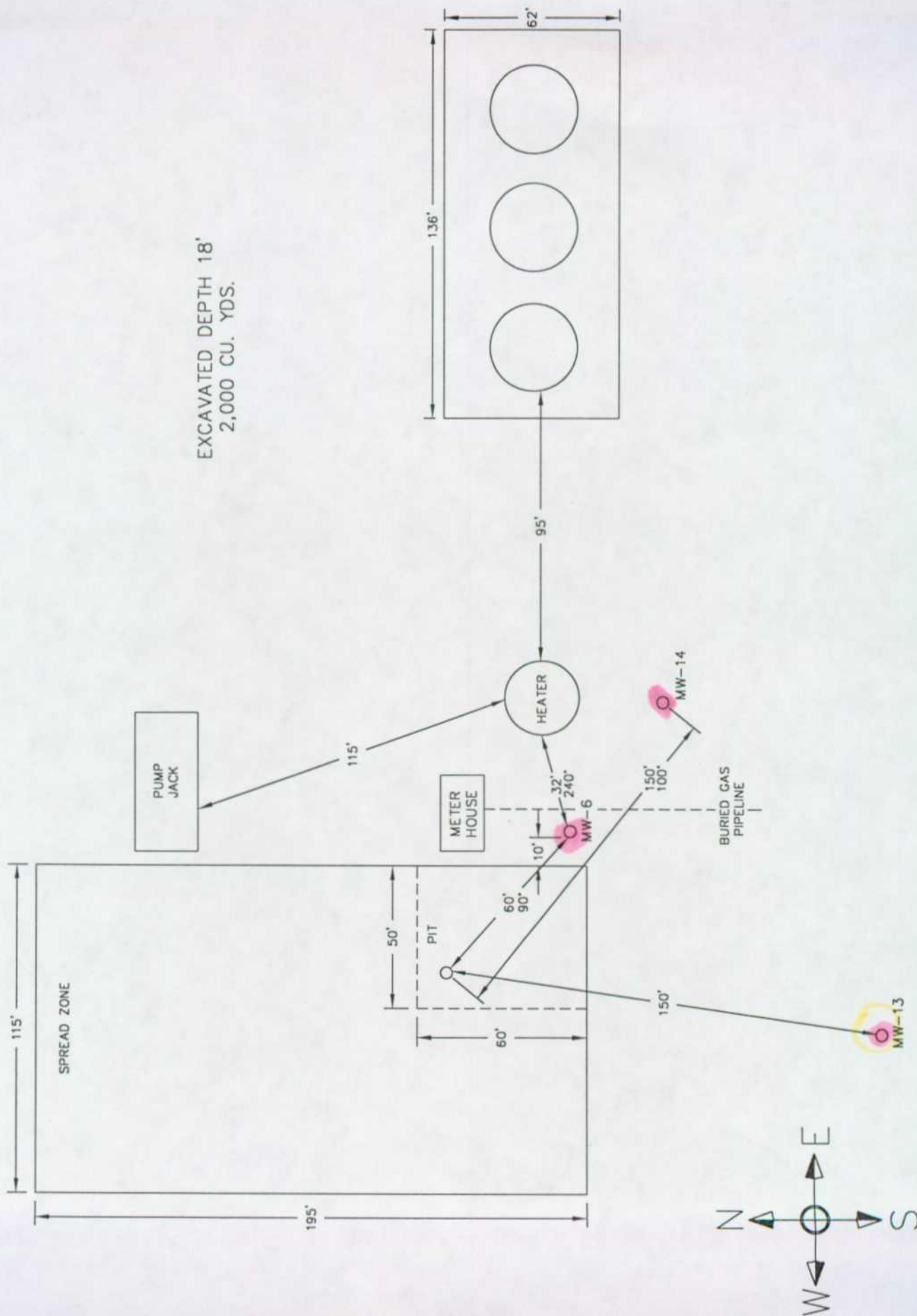
Bell



pell

BELL "A"

HWY 180



Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3158			LOG OF BORING Bell MW-1 (Page 1 of 2)																		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			<table style="width: 100%; border: none;"> <tr> <td style="width: 33%; border: none;">Date</td> <td style="width: 33%; border: none;">: August 28, 1997</td> <td style="width: 33%; border: none;">Site Location</td> <td style="width: 33%; border: none;">: 17 mi. W of Tatum, NM</td> </tr> <tr> <td style="border: none;">Drill Start</td> <td style="border: none;">: 1115</td> <td style="border: none;">Auger Type</td> <td style="border: none;">: Solid Stem</td> </tr> <tr> <td style="border: none;">Drill End</td> <td style="border: none;">: 1500</td> <td style="border: none;">Logged By</td> <td style="border: none;">: Mort Bates</td> </tr> <tr> <td style="border: none;">Boring Location</td> <td colspan="3" style="border: none;">: Bell, Sec. 21, SE Corner, 30 ft. from Center of Plt</td> </tr> </table>			Date	: August 28, 1997	Site Location	: 17 mi. W of Tatum, NM	Drill Start	: 1115	Auger Type	: Solid Stem	Drill End	: 1500	Logged By	: Mort Bates	Boring Location	: Bell, Sec. 21, SE Corner, 30 ft. from Center of Plt		
Date	: August 28, 1997	Site Location	: 17 mi. W of Tatum, NM																		
Drill Start	: 1115	Auger Type	: Solid Stem																		
Drill End	: 1500	Logged By	: Mort Bates																		
Boring Location	: Bell, Sec. 21, SE Corner, 30 ft. from Center of Plt																				
Depth in feet	GRAPHIC	USCS	DESCRIPTION																		
0			Caliche Rock w/Clay mix, hard, dry																		
5																					
10			Caliche Rock, clayey, hard, dry																		
15			Caliche, Clay, sandy, tan, stiff, damp																		
20																					
25																					
30																					

Well: MW-1
Elev.:

8"x12" monitor well cover with 2'x2' concrete base

Cap

Concrete

2 in. schedule 40, pvc casing

Grout

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 85202-3156			LOG OF BORING Bell MW-1 (Page 2 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 29, 1997 Drill Start : 1115 Drill End : 1500 Boring Location : Bell, Sec. 21, SE Corner, 30 ft. from Center of Pit		
Site Location : 17 mi. W of Tatum, NM Auger Type : Solid Stem Logged By : Mort Bates					

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
30				Well: MW-1 Elev.:
35				
40				
45		SC	Clayey Sand, tan, loose, damp	Grout 2 in. schedule 40, pvc casing Bentonite Seal
50				
55		SC	Clayey Sand, tan, loose, moist	Sand Pack .020 slot screen, 2 in. ID
60				
65		SC	Clayey Sand, tan, loose, saturated Water Level = 51 ft.	Well was bailed for one hour after drilling TD=60 ft.
70				

09-10-1997 a:\mydocu-1\mischipper-1\well1.log

Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING Bell State A, MW #2

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

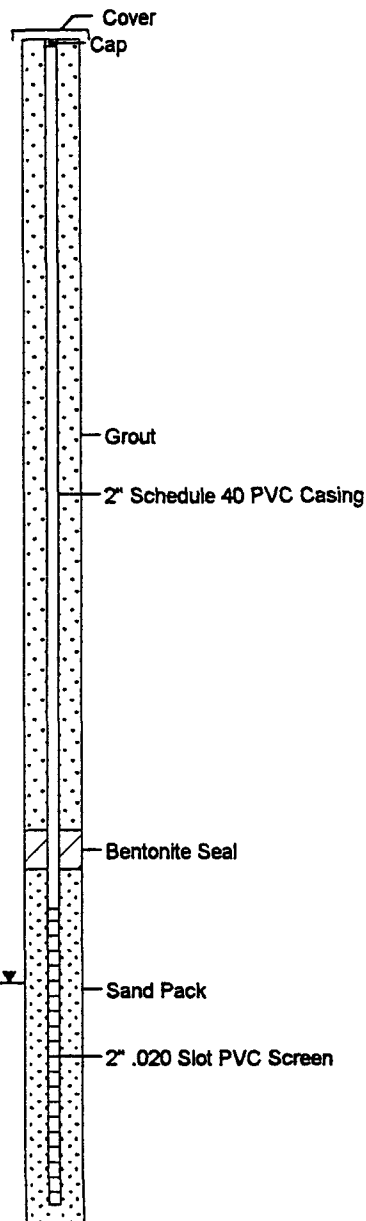
Date Completed : 10-2-97 Site Location : 14 miles W. of Tatum
Drill Start : 11:45 a.m. Auger Type : Hollow Stem
Drill End : 2:00 p.m. Logged By : Mort Bates
Boring Location : Bell State A, Sec. 21; 150 ft. S. SE. of Center of Pit

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0		CL	Clay w/Caliche, Brown, Stiff, Dry
5			Caliche w/Clay, Tan, Stiff, Dry
10			
15			Caliche Rock, Tan, Hard, Dry
20			Clay w/Caliche, Tan, Stiff, Dry
25		CL	
30			
35		SC	Clayey Sand, Tan, Loose, Damp
40			
45		CL	Sandy Clay, Tan, Loose, Moist
50			WL = 47.75 ft.
55		CL	Sandy Clay, Tan, Loose, Saturated
60			TD = 60 ft.
65			Bailed and Developed well

Well: MW #2

Elev.:



Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING Bell State A, MW #3

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

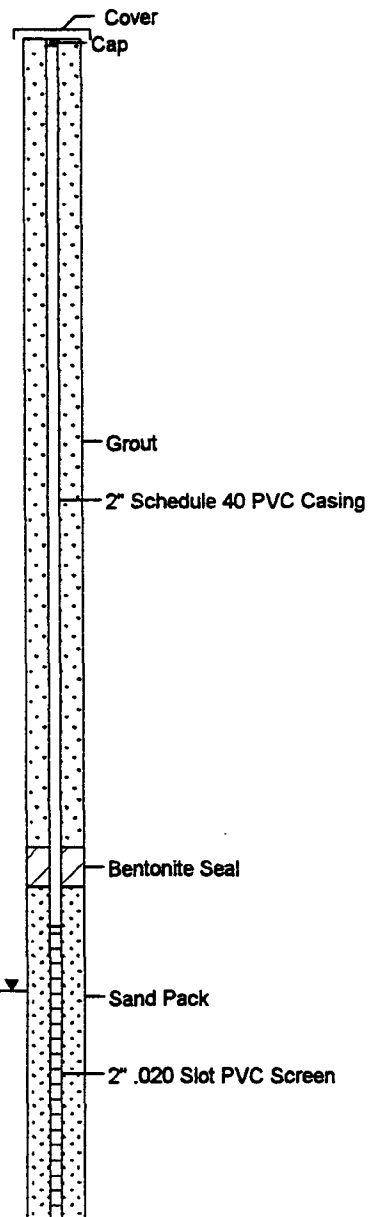
Date Completed : 10-2-97 Site Location : 14 miles W. of Tatum
Drill Start : 10:15 a.m. Auger Type : Hollow Stem
Drill End : 11:30 a.m. Logged By : Mori Bates
Boring Location : Bell State A, Sec. 21; 150 ft. E. SE. of Center of Pit

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0		CL	Clay w/Caliche Rock, Brown, Loose, Damp
5			Caliche Rock w/Clay, Tan, Stiff, Dry
10			
15			Caliche Rock w/Clay, Tan, Hard, Dry
20			
25		CL	Clay w/Caliche, Tan, Stiff, Dry
30			Clayey Sand, Tan, Stiff, Dry
35		SC	
40			Sandy Clay, Tan, Stiff, Moist
45		CL	
50			Sandy Clay, Tan, Loose, Wet to Saturated WL = 48.32 ft.
55		CL	
60			TD = 60 ft.
65			Bailed and Developed well

Well: MW #3

Elev.:



ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

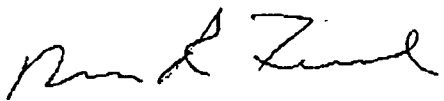
TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4358

Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13174	NBN MW-7	0.017	0.002	<0.001	0.001	0.002
13175	NBF MW-8	0.051	0.007	0.012	0.047	0.009
13176	NBF MW-16	0.234	0.003	0.004	0.012	0.003
13177	MABLE COM. MW-3	1.093	0.024	0.097	0.153	0.020
13178	MABLE COM. MW-4	1.465	0.007	0.017	0.010	0.002
13179	BELL A MW-G	0.029	0.004	0.002	0.030	0.003
13180	BELL A MW-13	0.002	0.001	<0.001	0.005	0.001
13181	BELL A MW-14	1.147	0.007	0.017	0.010	0.002
13182	IVA COM. MW-1	0.004	0.003	0.001	0.009	0.008
13183	IVA COM. MW-2	0.002	0.002	0.001	0.006	0.002
% IA		93	93	93	92	95
% EA		101	101	103	102	104
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020.5030


Michael R. Fowler

12-5-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/08/97
Sample Type: WATER
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 09/09/97
Sampling Date: 09/05/97, 09/06/97
Sample Condition: Intact/Ice

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12475	IVA COM MW#1	<.001	<.001	<.001	0.002	0.007
12476	IVA COM MW#2	<.001	<.001	<.001	<.001	<.001
12477	IVA COM SW	3.129	2.551	0.209	1.182	0.094
12478	GS #12	1.834	0.055	0.061	3.085	0.084
12481	BELL #6	0.687	0.013	0.024	0.060	0.006
12482	NBN #7	<.001	<.001	<.001	<.001	<.001
12483	SOHIO 1 #10	2.559	1.148	0.243	1.257	0.081
12484	SOHIO A #11	0.096	0.004	0.002	0.008	0.012
12485	SAT 4 #9	0.092	0.010	0.015	0.082	0.002
12486	NBF #8	0.302	0.208	0.039	0.253	0.161
12487	VERA #5	0.003	0.003	0.005	0.021	0.029
12488	MABLE MW #3	0.010	0.008	0.031	0.139	0.012
12489	MABLE MW #4	0.015	0.002	0.002	0.010	0.002
% IA		111	111	112	111	113
% EA		113	112	114	112	111
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

9-10-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

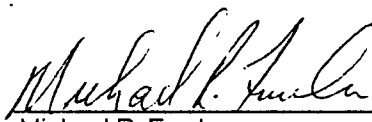
Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

41 copies

Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date



Bell State "A"
Soil Sampling Results

	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/20/97	8/20/97	8/20/97	8/20/97	8/20/97	8/29/97	
Date Tested	8/21/97	8/21/97	8/21/97	8/21/97	8/21/97	9/2/97	
ELT#	12251	12253	12252	12254	12255	12424	
							Allowable
Benzene	<.100	<.100	<.100	<.100	<.100	<.100	10.0
Toluene	0.841	<.100	<.100	<.100	0.186	<.100	
Ethylbenzene	0.376	<.100	<.100	<.100	<.100	<.100	
m,p Xylene	1.917	<.100	0.180	<.100	0.250	<.100	
o Xylene	2.475	<.100	<.100	<.100	0.391	<.100	
Total BTEX	5.609	ND	0.180	ND	0.827	ND	50.0
TPH	5,746	<10	163	147	3,951	103	10,000

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<.100	<.100	<.100	0.105	<.100	<10
12422	MABLE FINAL	<.100	0.165	0.129	0.255	<.100	11
12423	VERA FINAL	<.100	0.126	<.100	0.192	<.100	10
12424	BELL FINAL	<.100	<.100	<.100	<.100	<.100	24
12425	NBN FINAL	<.100	<.100	<.100	<.100	<.100	103
12426	NBF FINAL	<.100	<.100	<.100	<.100	<.100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6.702
12428	SOHIO 1 FINAL	<.100	0.373	0.142	0.463	0.342	15.016
12429	G.S. FINAL	<.100	<.100	<.100	<.100	<.100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<.100	<.100	<.100	0.217	0.166	2.963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL

ATTN: MR. MIKE GRIFFIN

19606 SAN GABRIEL

HOUSTON, TEXAS 77084

FAX: 1-281-646-8996

23 copies

Receiving Date: 08/21/97

Sample Type: SOIL

Project: TIPPERARY

Project Location: NONE GIVEN

Analysis Date: BTEX 08/21/97

Analysis Date: DRO 08/22/97

Sampling Date: 08/20/97

Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12249	NBF BOTM	<.100	<.100	<.100	0.390	0.247	3.547
12250	MABLE EAST (RE-TEST)	<.100	1.657	0.444	3.185	3.531	7.398
12251	BELL NORTH	<.100	0.841	0.376	1.917	2.475	5.746
12252	BELL SOUTH	<.100	<.100	<.100	0.18	<.100	<10
12253	BELL EAST	<.100	<.100	<.100	<.100	<.100	163
12254	BELL WEST	<.100	<.100	<.100	<.100	<.100	147
12255	BELL BOTTOM	<.100	0.186	<.100	0.250	0.391	3.951
12256	VERA NORTH	<.100	<.100	<.100	<.100	<.100	122
12257	VERA SOUTH	<.100	<.100	<.100	0.200	0.279	10
12258	VERA EAST	<.100	<.100	<.100	<.100	<.100	2,302
12259	VERA WEST	<.100	<.100	<.100	<.100	<.100	571
12260	VERA BOTTOM	<.100	<.100	<.100	<.100	<.100	89
% IA		93	88	89	86	88	108
% EA		111	104	100	96	100	100
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030.8015m DRO



Michael R. Fowler

10-27-97
Date



Bell State "A"
Water Sampling Results

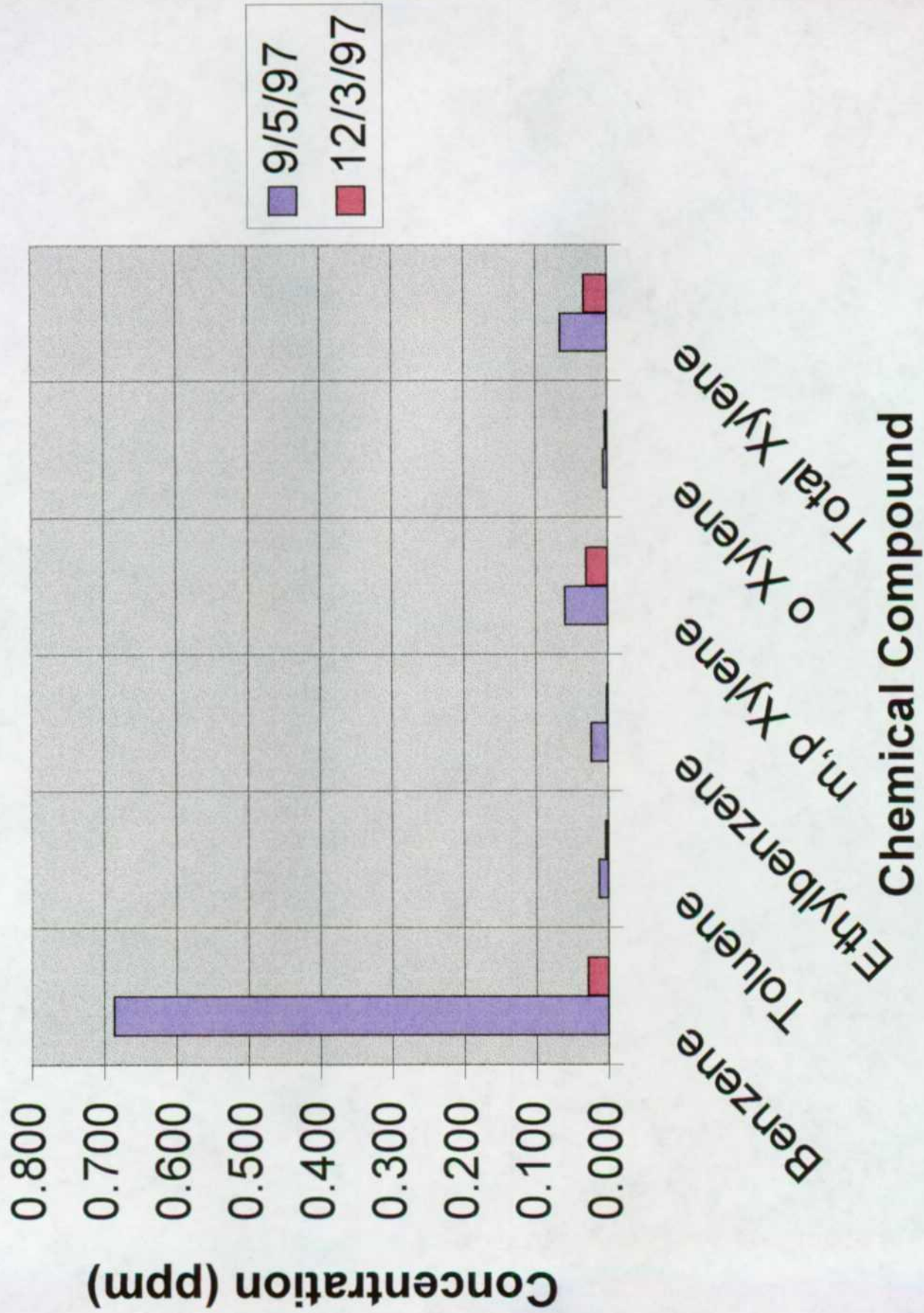
Sample I.D. (Lab)	ELT 12481	ELT 12731	ELT 12732	New Mexico WQCC Allowable Concentrations
Date Sampled	9/5/97	10/2/97	10/2/97	
Date Analyzed	9/9/97	10/5/97	10/5/97	
Source I.D.	M.W. # 6	M.W. # 13	MW # 14	

BTEX				
Benzene	0.687	1.309	0.001	0.010
Toluene	0.013	0.003	<.001	0.750
Ethylbenzene	0.024	0.020	<.001	0.750
m,p xylene	0.060	0.013	<.001	
o xylene	0.006	<.001	<.001	
(Ttl. Xylene)	0.066	0.013	0.001	0.620

Monitor Well # 6
Bell State "A"
Sampling Results

Lab. #	12481	13179
Sample Date	9/5/97	12/3/97
Benzene	0.687	0.029
Toluene	0.013	0.004
Ethylbenzene	0.024	0.002
m,p Xylene	0.060	0.03
o Xylene	0.006	0.003
Total Xylene	0.066	0.033
Total BTEX	0.790	0.068

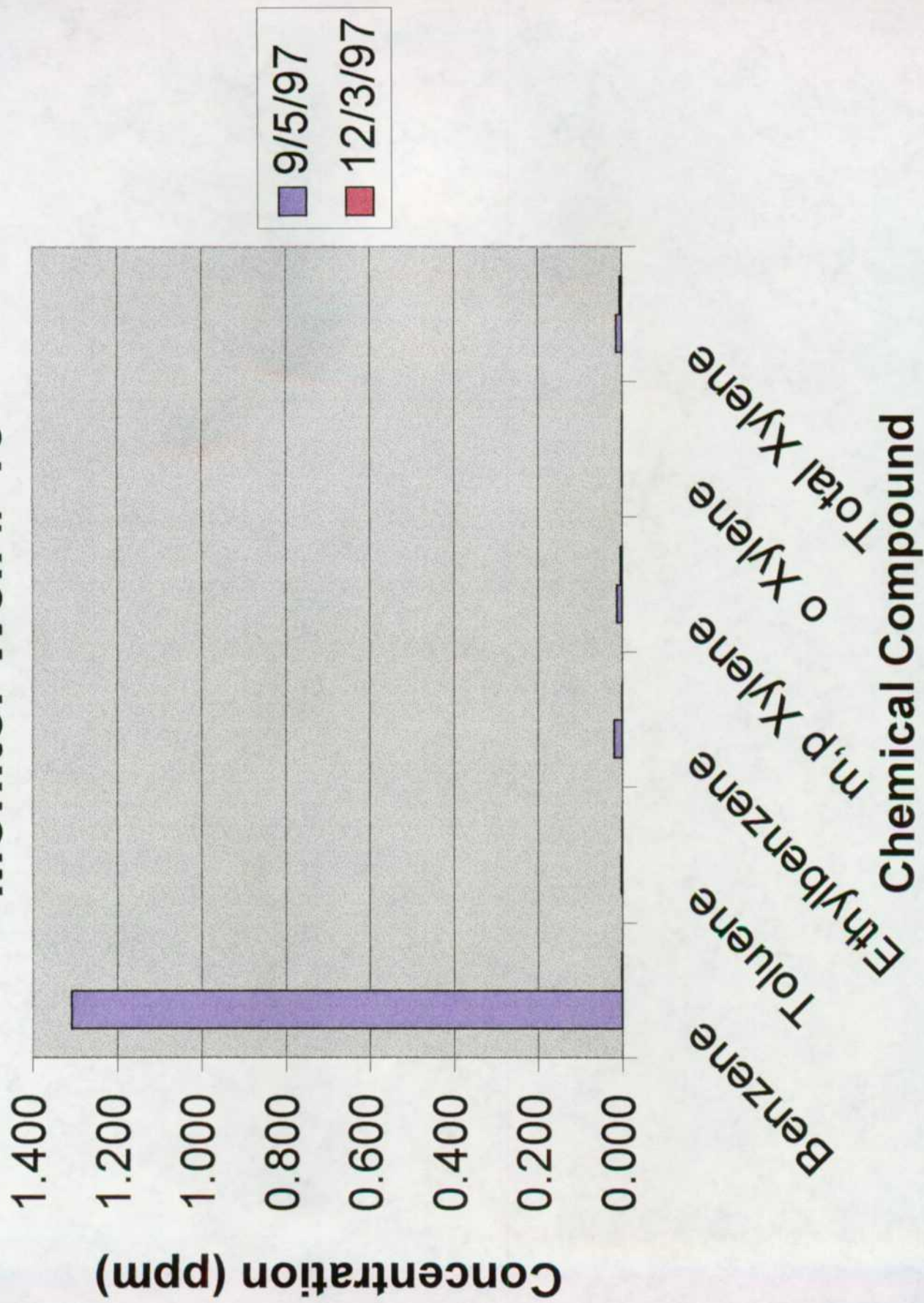
Monitor Well # 6



Monitor Well # 13
Bell State "A"
Sampling Results

Lab. #	12731	13180
Sample Date	9/5/97	12/3/97
Benzene	1.309	0.002
Toluene	0.003	0.001
Ethylbenzene	0.02	0.001
m,p Xylene	0.013	0.005
o Xylene	0.001	0.001
Total Xylene	0.014	0.006
Total BTEX	1.346	0.010

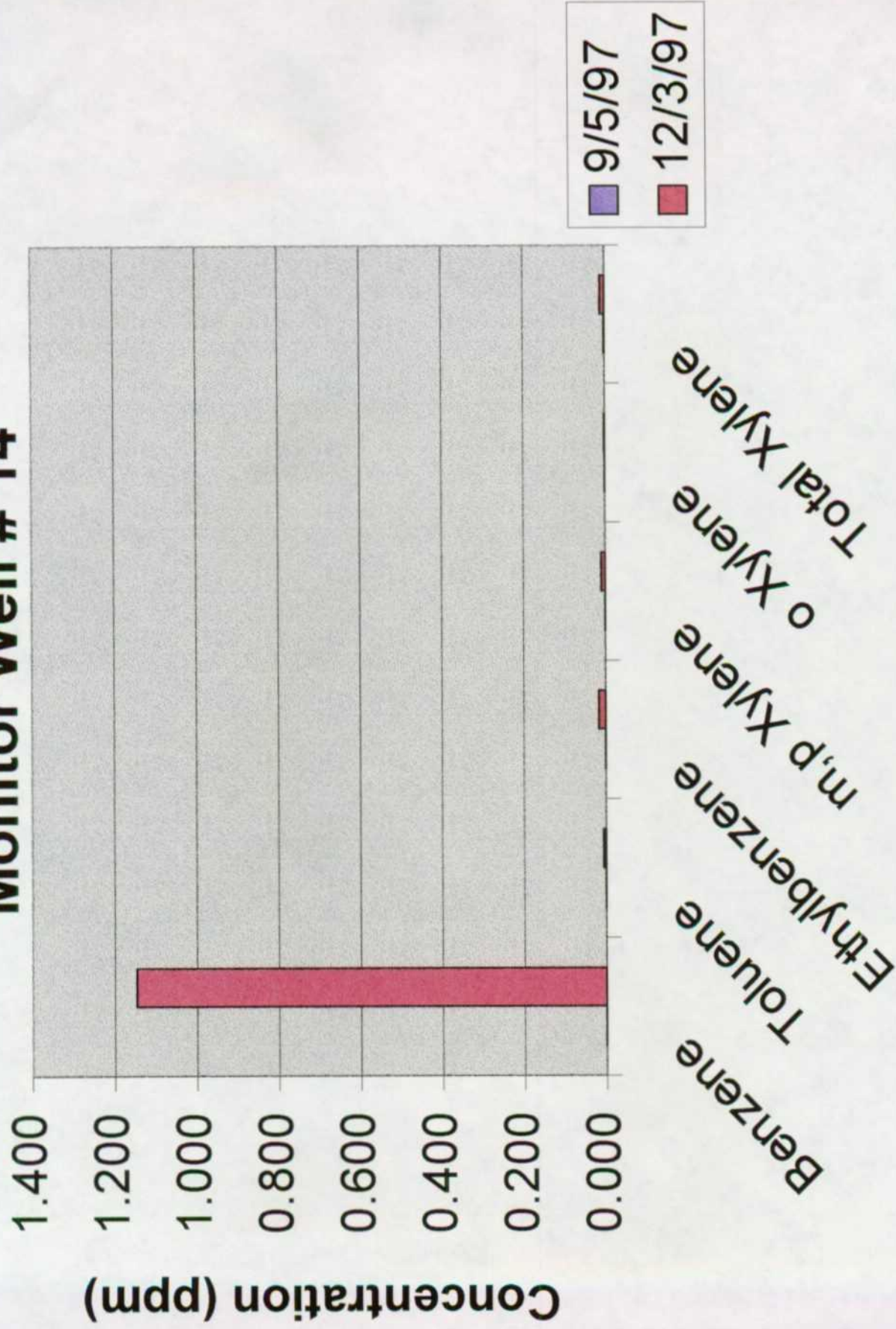
Monitor Well # 13

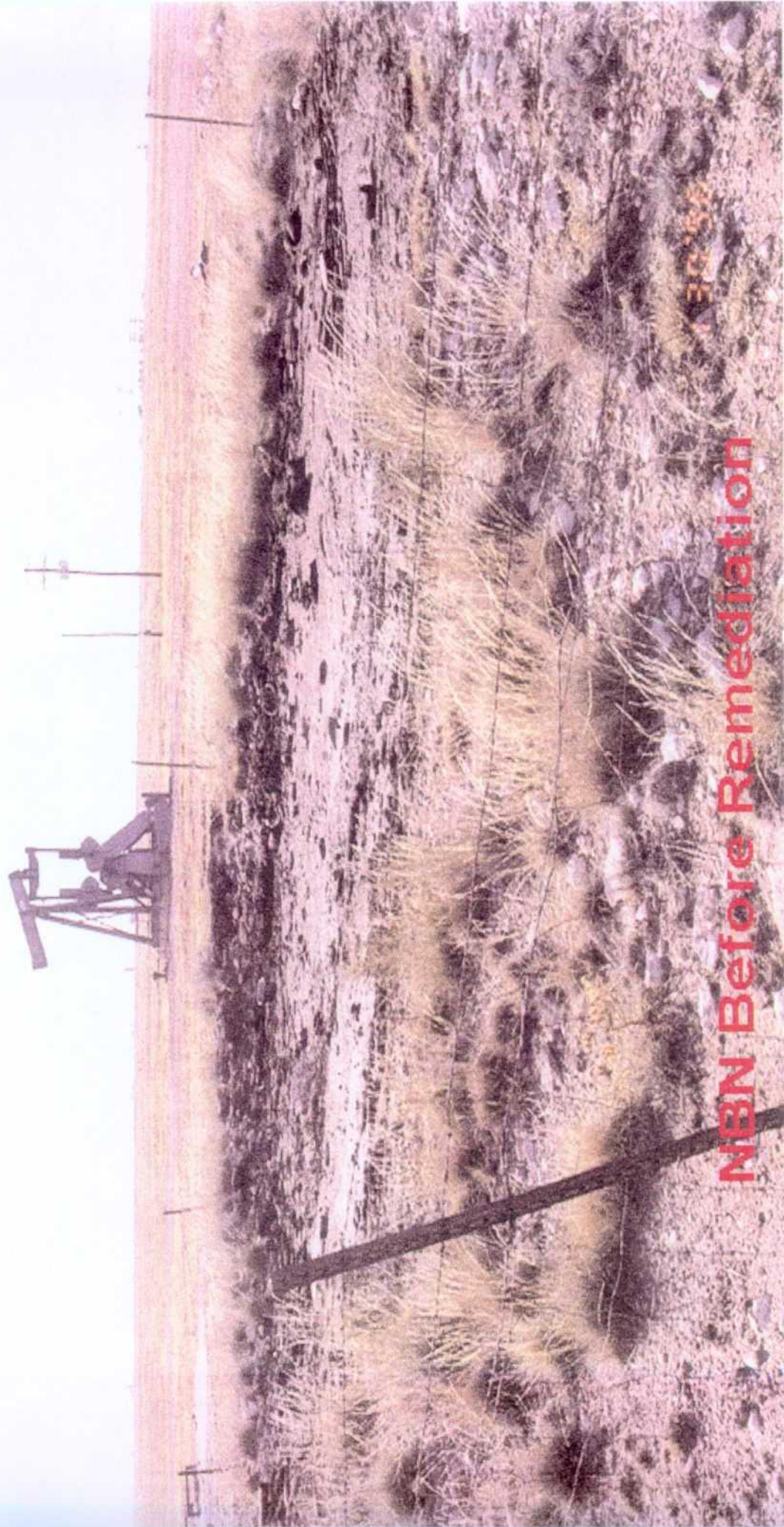


Monitor Well # 14
Bell State "A"
Sampling Results

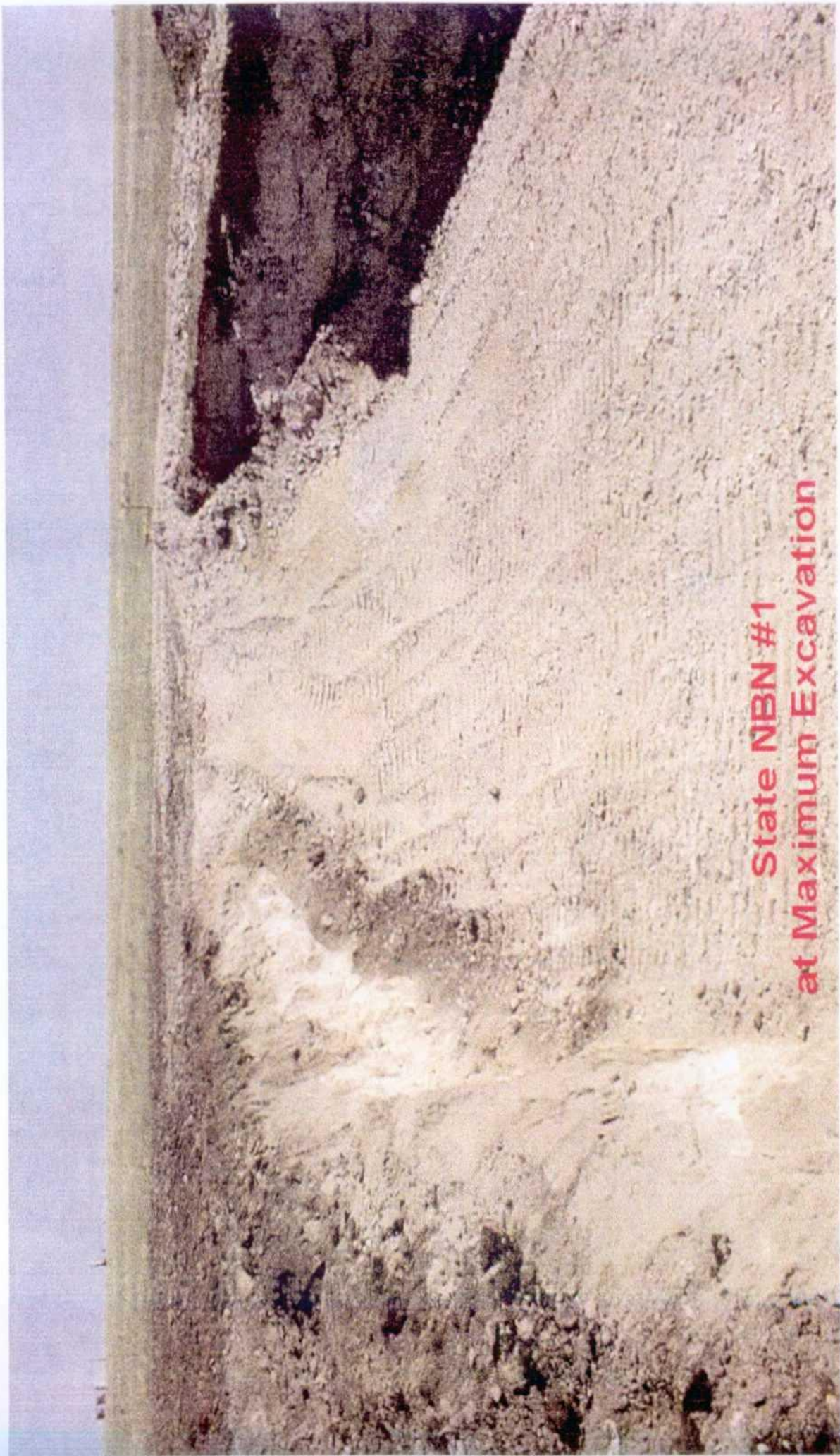
Lab. #	12732	13181
Sample Date	9/5/97	12/3/97
Benzene	0.001	1.147
Toluene	0.001	0.007
Ethylbenzene	0.001	0.017
m,p Xylene	0.001	0.010
o Xylene	0.001	0.002
Total Xylene	0.002	0.012
Total BTEX	0.005	1.183

Monitor Well # 14

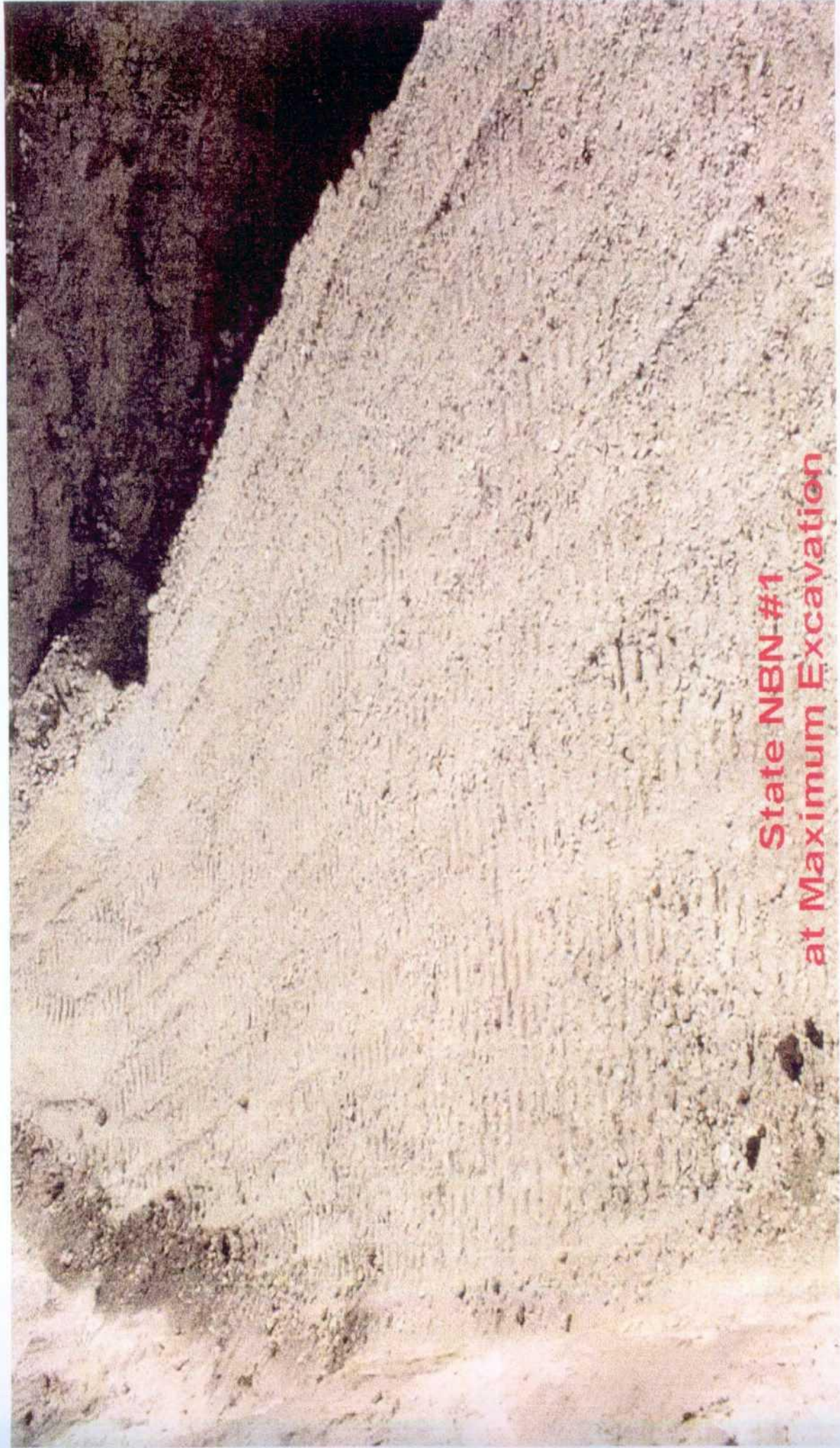




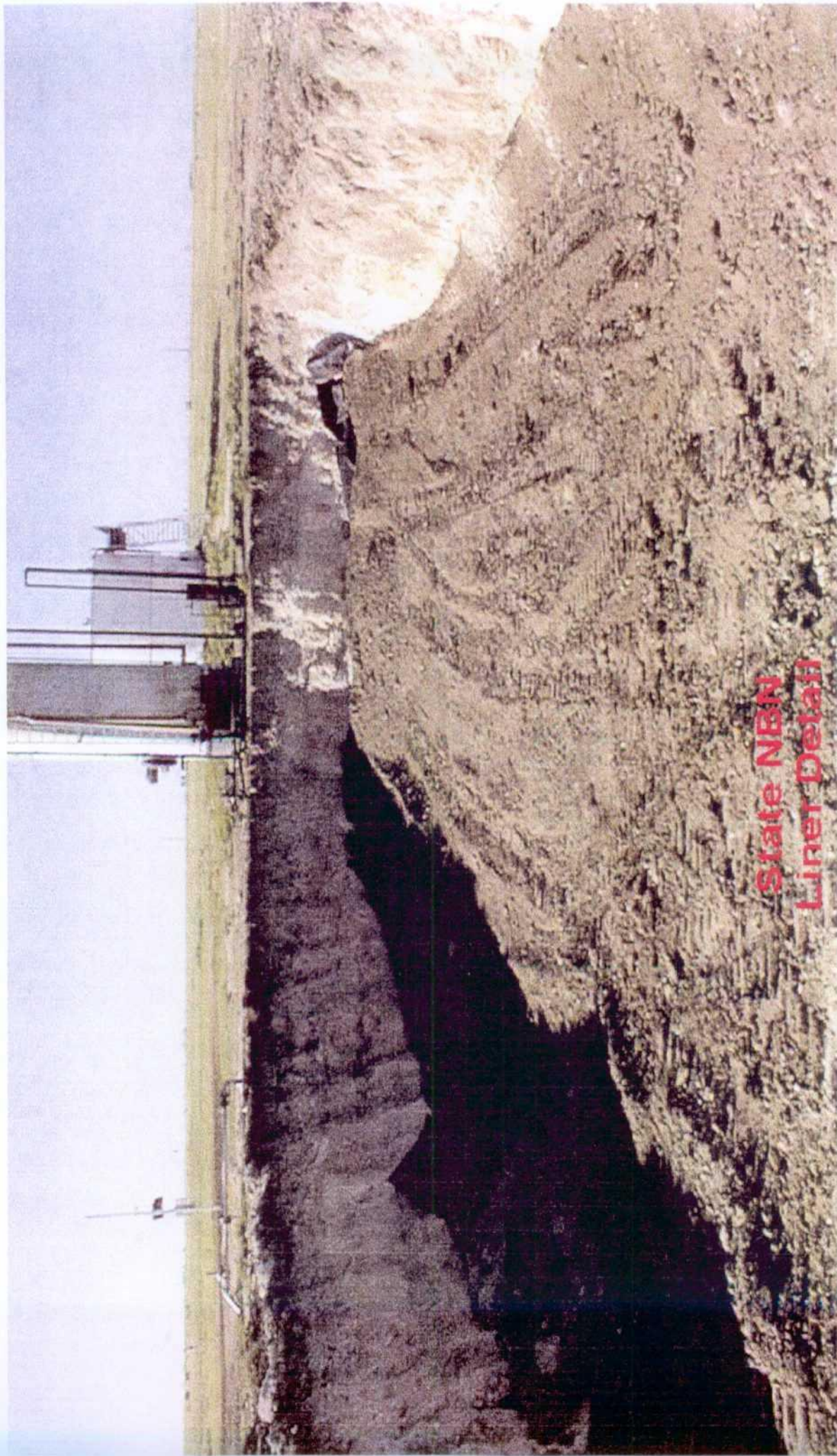
NBN Before Remediation



State NBN #1
at Maximum Excavation



State NBN #1
at Maximum Excavation



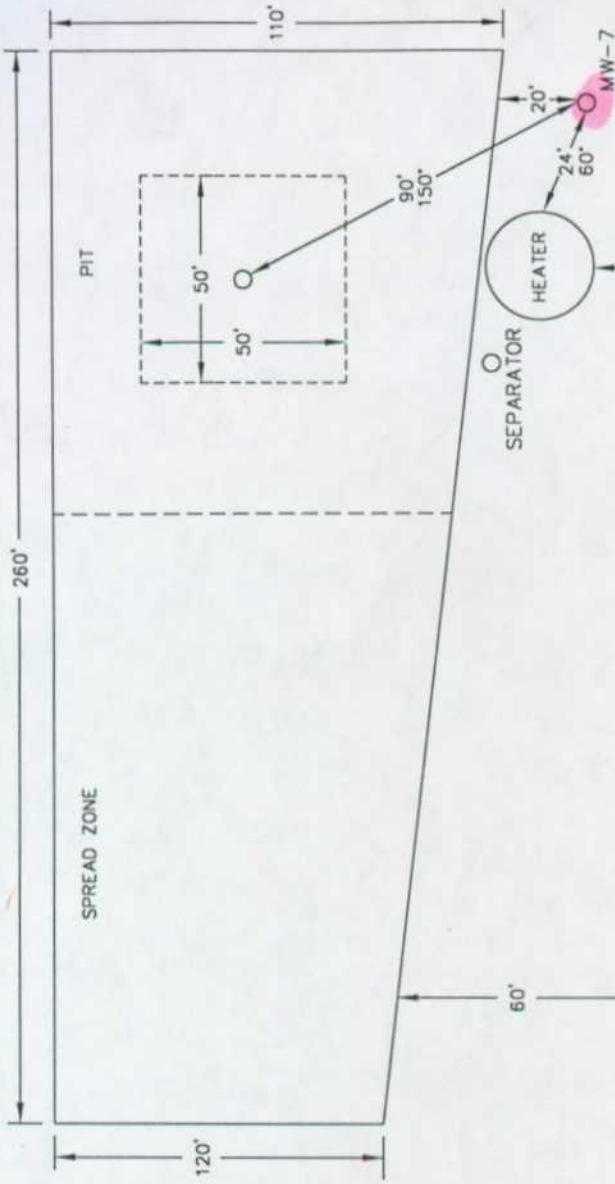
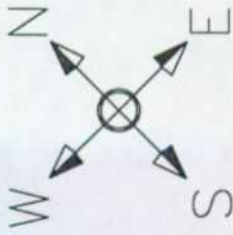
State NBN
Liner Detail



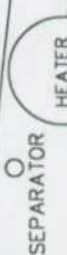
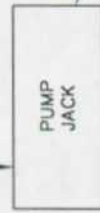
State NBN
Liner Detail







EXCAVATED DEPTH 17'
1,574 CU. YDS.



LEASE ROAD

Atkins Engineering Associates, Inc. 2804 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING NBN MW-1 (Page 1 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 25, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 1525 Auger Type : Solid Stem Drill End : 1800 Logged By : Mort Sales Boring Location : NBN, Sec. 16, 45 R SE of Center of PR		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
0			Caliche Rock, clayey, tan, firm, dry	Well: MW-1 Elev.:
5				
10			Caliche Clay, tan, stiff, dry	
15				
20		CL		
25				
30		CL		
35				

08-05-1997 0' to 10' depth - 1 inch diameter - 1 inch hole

Atkins Engineering Associates, Inc. 2004 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING NBN MW-1 (Page 2 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 28, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 1525 Auger Type : Solid Stem Drill End : 1800 Logged By : Mori Bares Boring Location : NBN, Sec. 16, 45 E SE of Center of Pt		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
30	CL	CL	Clayey Sand, tan, firm, damp	Grout 2 in. schedule 40, pvc casing
35				
40	SC	SC	Sandy Clay, tan, firm, moist	Bentonite Seal
45				
50	CL	CL	Water Level = 50 ft.	Sand Pack .020 slot screen, 2 in. ID
55			Sandy Clay, tan, soft, saturated	
60	CL	CL	TD=60 ft.	

CS-05-1987 c:\vyrdoc\c:\trans\csgal-1\well1 bor



State NBN # 1
Water Sampling Results

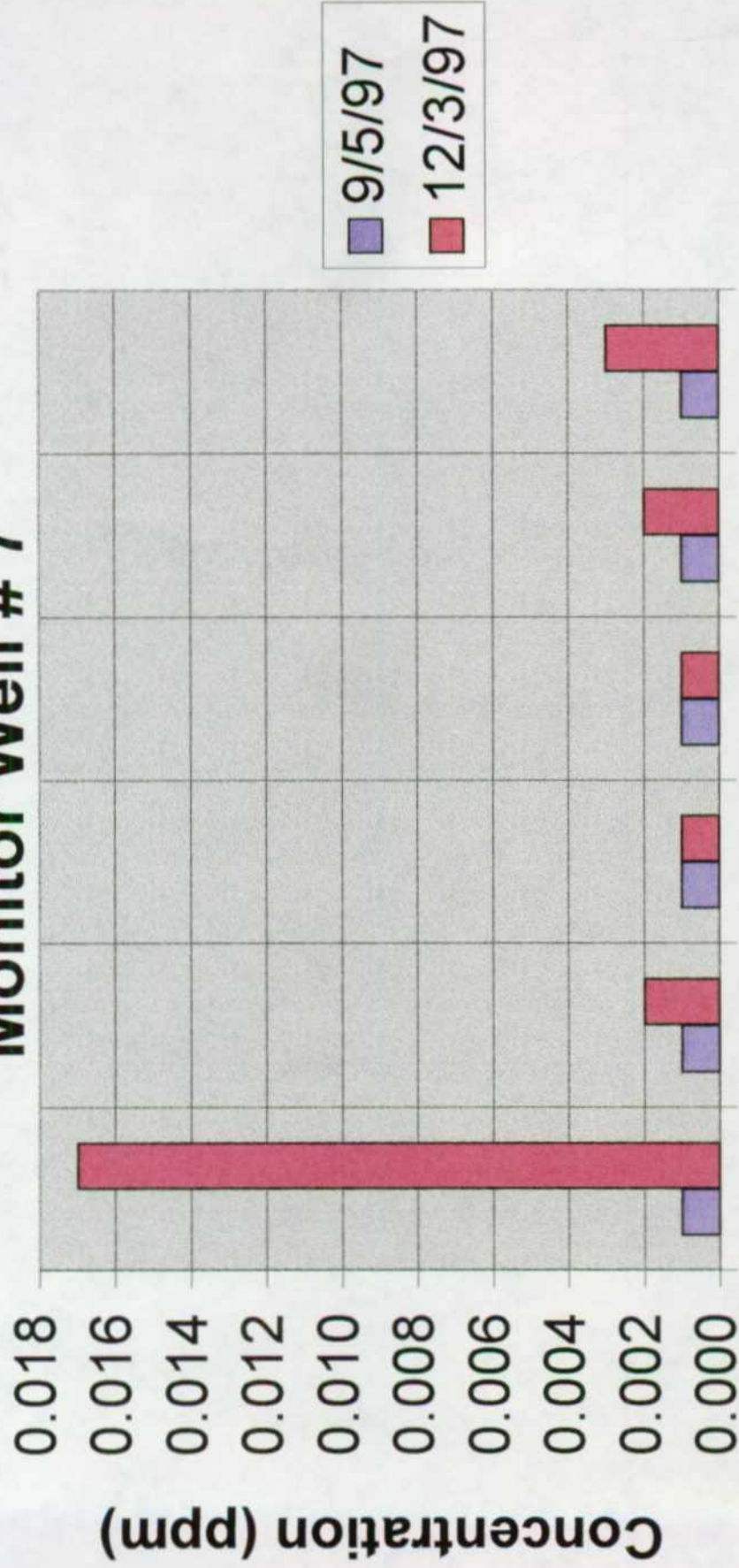
Sample I.D. (Lab)	ELT 12482	New Mexico WQCC Allowable Concentrations
Date Sampled	9/5/97	
Date Analyzed	9/9/97	
Source I.D.	M.W. # 7	

BTEX		
Benzene	<.001	0.010
Toluene	<.001	0.750
Ethylbenzene	<.001	0.750
m,p xylene	<.001	
o xylene	<.001	
(Ttl. Xylene)	<.002	0.620

Monitor Well # 7
State NBN # 1
Sampling Results

Lab. #	12482	13174
Sample Date	9/5/97	12/3/97
Benzene	0.001	0.017
Toluene	0.001	0.002
Ethylbenzene	0.001	0.001
m,p Xylene	0.001	0.001
o Xylene	0.001	0.002
Total Xylene	0.001	0.003
Total BTEX	0.005	0.023

Monitor Well # 7



ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

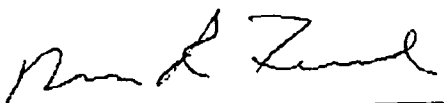
TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4358

Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13174	NBN MW-7	0.017	0.002	<0.001	0.001	0.002
13175	NBF MW-8	0.051	0.007	0.012	0.047	0.009
13176	NBF MW-16	0.234	0.003	0.004	0.012	0.003
13177	MABLE COM. MW-3	1.093	0.024	0.097	0.153	0.020
13178	MABLE COM. MW-4	1.465	0.007	0.017	0.010	0.002
13179	BELL A MW-G	0.029	0.004	0.002	0.030	0.003
13180	BELL A MW-13	0.002	0.001	<0.001	0.005	0.001
13181	BELL A MW-14	1.147	0.007	0.017	0.010	0.002
13182	IVA COM. MW-1	0.004	0.003	0.001	0.009	0.008
13183	IVA COM. MW-2	0.002	0.002	0.001	0.006	0.002
% IA		93	93	93	92	95
% EA		101	101	103	102	104
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

12-5-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/08/97
Sample Type: WATER
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 09/09/97
Sampling Date: 09/05/97, 09/06/97
Sample Condition: Intact/Ice

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12475	IVA COM MW#1	<.001	<.001	<.001	0.002	0.007
12476	IVA COM MW#2	<.001	<.001	<.001	<.001	<.001
12477	IVA COM SW	3.129	2.551	0.209	1.182	0.094
12478	GS #12	1.834	0.055	0.061	3.085	0.084
12481	BELL #6	0.687	0.013	0.024	0.060	0.006
12482	NBN #7	<.001	<.001	<.001	<.001	<.001
12483	SOHIO 1 #10	2.559	1.148	0.243	1.257	0.081
12484	SOHIO A #11	0.096	0.004	0.002	0.008	0.012
12485	SAT 4 #9	0.092	0.010	0.015	0.082	0.002
12486	NBF #8	0.302	0.208	0.039	0.253	0.161
12487	VERA #5	0.003	0.003	0.005	0.021	0.029
12488	MABLE MW #3	0.010	0.008	0.031	0.139	0.012
12489	MABLE MW #4	0.015	0.002	0.002	0.010	0.002
% IA		111	111	112	111	113
% EA		113	112	114	112	111
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

9-10-97
Date



State NBN #1
Soil Sampling Results

	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/20/97	8/20/97	8/20/97	8/20/97	8/20/97	8/29/97	
Date Tested	8/21/97	8/21/97	8/21/97	8/21/97	8/21/97	9/2/97	
ELT#	12239	12241	12240	12242	12243	12245	
							Allowable
Benzene	<.100	<.001	<.100	<.100	<.100	<.100	10.0
Toluene	<.100	0.571	<.100	<.100	0.149	<.100	
Ethylbenzene	<.100	0.409	<.100	<.100	0.140	<.100	
m,p Xylene	0.168	2.547	<.100	0.144	0.303	<.100	
o Xylene	<.100	0.850	<.100	<.100	0.151	<.100	
Total BTEX	0.168	4.458	ND	0.144	0.770	ND	50.0
TPH	<10	1,222	<10	21	1,965	103	10,000

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM.N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<.100	<.100	<.100	0.105	<.100	<10
12422	MABLE FINAL	<.100	0.165	0.129	0.255	<.100	11
12423	VERA FINAL	<.100	0.126	<.100	0.192	<.100	10
12424	BELL FINAL	<.100	<.100	<.100	<.100	<.100	24
12425	NBN FINAL	<.100	<.100	<.100	<.100	<.100	103
12426	NBF FINAL	<.100	<.100	<.100	<.100	<.100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6.702
12428	SOHIO 1 FINAL	<.100	0.373	0.142	0.463	0.342	15.016
12429	G.S. FINAL	<.100	<.100	<.100	<.100	<.100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<.100	<.100	<.100	0.217	0.166	2.963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

17
copies

Receiving Date: 08/21/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 08/21/97
Sampling Date: 08/20/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12239	NBN NORTH	<.100	<.100	<.100	0.168	<.100	<10
12240	NBN SOUTH	<.100	<.100	<.100	<.100	<.100	<10
12241	NBN EAST	<.100	0.571	0.409	2.547	0.85	1,222
12242	NBN WEST	<.100	<.100	<.100	0.144	<.100	21
12243	NBN BTM	<.100	0.149	0.14	0.303	0.151	1,965
12244	IVA BOTTOM (RE-TEST)	<.100	<.100	<.100	<.100	<.100	1,577
12245	NBF NORTH	<.100	0.125	<.100	0.377	0.245	1,063
12246	NBF SOUTH	<.100	0.107	0.201	0.694	0.898	8,389
12247	NBF EAST	<.100	<.100	<.100	<.100	<.100	<10
12248	NBF WEST	<.100	0.103	<.100	0.327	0.254	4,699
% IA		106	97	95	93	97	94
% EA		109	102	99	97	100	98
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

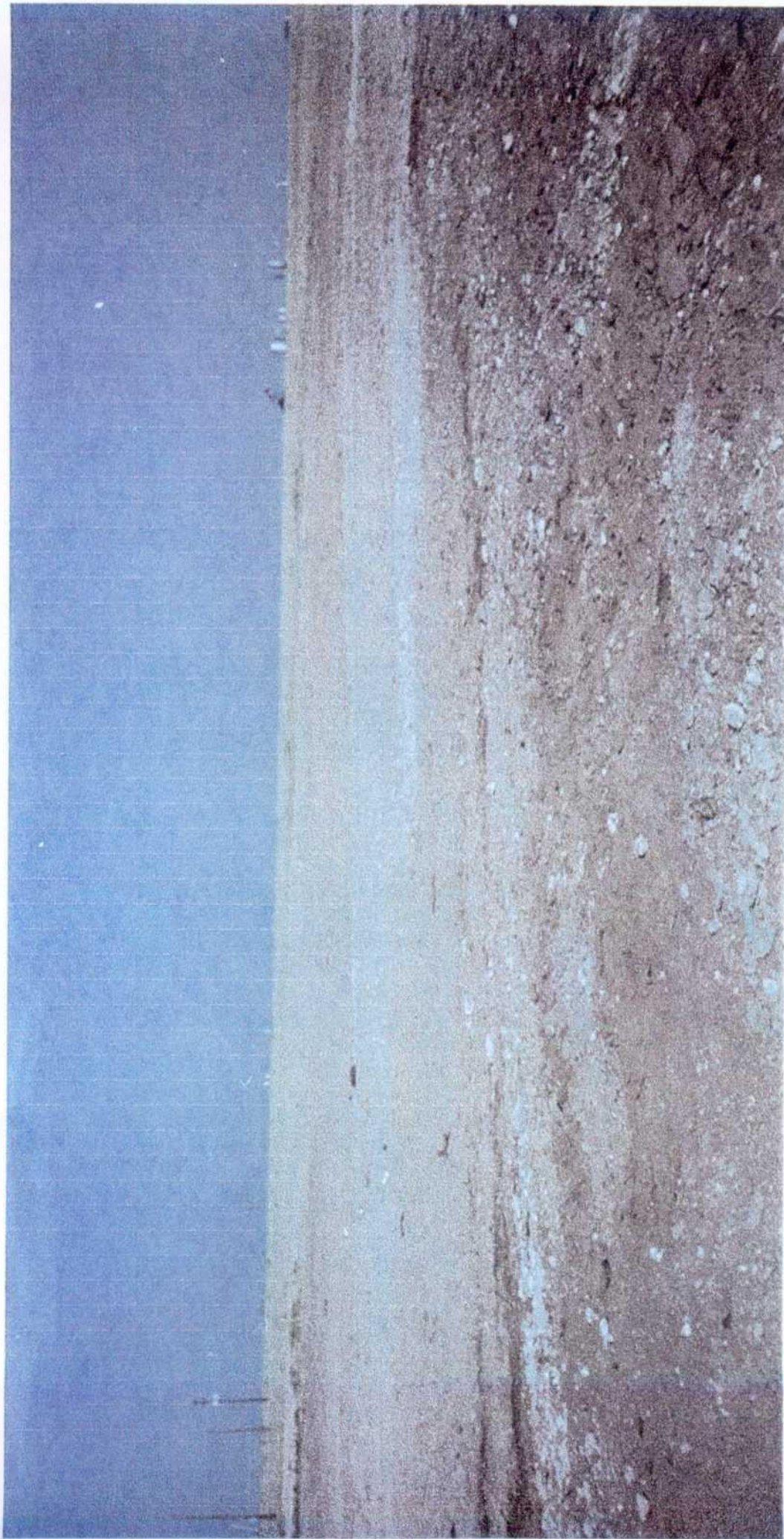
10-28-97
Date



State NBF #1
at Maximum Excavation

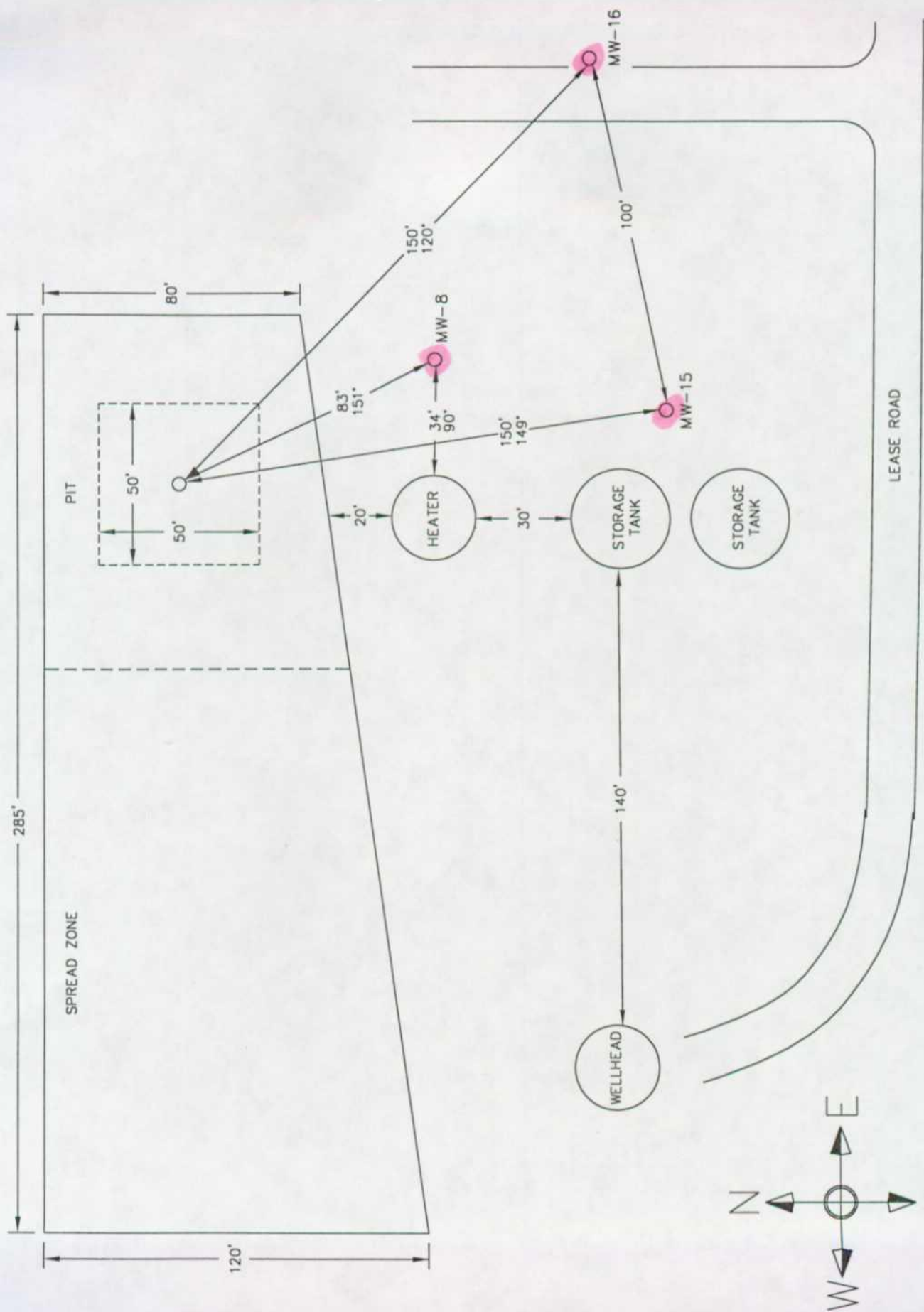


State NBF #1
at Maximum Excavation



NBF

EXCAVATED DEPTH 24'
2,222 CU. YDS.



Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156			LOG OF BORING NFB MW-1 (Page 1 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 29, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 1535 Auger Type : Hollow Stem Drill End : 1800 Logged By : Mort Bates Boring Location : NFB, Sec. 15, app. 50 ft SE of Corner of P11		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
0			Caliche Rock, clayey, tan, hard, dry	Well: MW-1 Elev.: 8"x12" monitor well cover with 2"x2" concrete base Cap Concrete 2 in. schedule 40, pvc casing Grout
5			Caliche Clay, tan, stiff, dry	
10		CL	Caliche Rock, clayey, tan, hard, dry	
15				
20				
25			Clayey Sand, tan, stiff, dry	
30		SC		

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156		LOG OF BORING NFB MW-1 (Page 2 of 2)																	
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental		<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">Date</td> <td style="width: 33%;">: August 29, 1997</td> <td style="width: 33%;">Site Location</td> <td style="width: 33%;">: 17 mi. W of Tatum, NM</td> </tr> <tr> <td>Drill Start</td> <td>: 1535</td> <td>Auger Type</td> <td>: Hollow Stem</td> </tr> <tr> <td>Drill End</td> <td>: 1800</td> <td>Logged By</td> <td>: Mort Bates</td> </tr> <tr> <td>Boring Location</td> <td colspan="3">: NFB, Sec. 15, app. 50 ft SE of Corner of P#1</td> </tr> </table>		Date	: August 29, 1997	Site Location	: 17 mi. W of Tatum, NM	Drill Start	: 1535	Auger Type	: Hollow Stem	Drill End	: 1800	Logged By	: Mort Bates	Boring Location	: NFB, Sec. 15, app. 50 ft SE of Corner of P#1		
Date	: August 29, 1997	Site Location	: 17 mi. W of Tatum, NM																
Drill Start	: 1535	Auger Type	: Hollow Stem																
Drill End	: 1800	Logged By	: Mort Bates																
Boring Location	: NFB, Sec. 15, app. 50 ft SE of Corner of P#1																		

Depth in feet	GRAPHIC USCS	DESCRIPTION
30	SC	
35		
40		
45	SC	Sandy Clay, tan, stiff, moist
50		Sandy Clay, tan, loose, saturated Water Level = 48 ft.
55	SC	
60		

TD=60 ft.

Well: MW-1
Elev.:

The diagram shows a vertical cross-section of the well casing. From top to bottom, it includes: Grout (stippled pattern), 2 in. schedule 40, pvc casing (dotted pattern), Bentonite Seal (hatched pattern), Sand Pack (stippled pattern), and .020 slot screen, 2 in ID (dashed line). The casing extends from approximately 30 feet depth to 60 feet depth.

Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING State NBF, MW #2

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

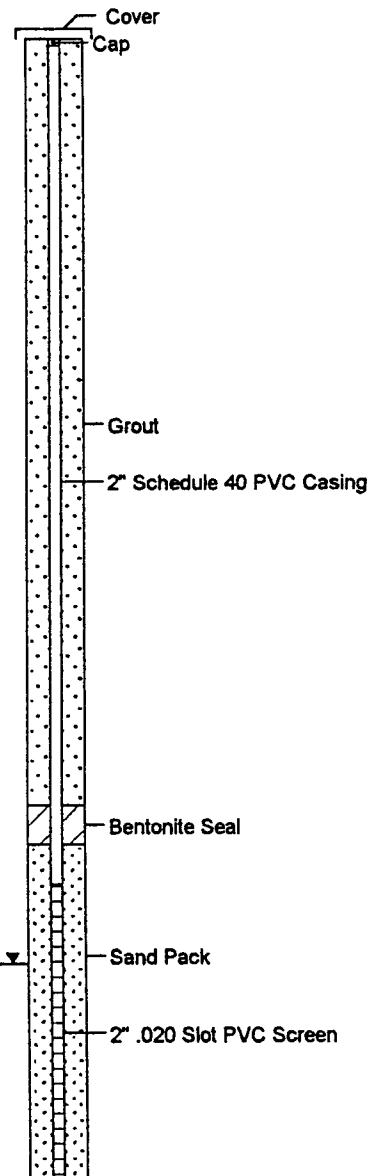
Date Completed : 10-1-97 Site Location : 17 miles W. of Tatum
Drill Start : 12:00 noon Auger Type : Hollow Stem
Drill End : 1:45 p.m. Logged By : Mort Bates
Boring Location : State NBF, Sec. 22; 150 ft. S. SE. of Center of Pit

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0		CL	Caliche Rock w/Silty Clay, Brown, Hard, Dry
5			Caliche Rock w/Silty Clay, Tan, Hard, Dry
10			
15			Clay w/Caliche, Tan, Stiff, Dry
20			
25		CL	
30			
35			Sandy Clay, Tan, Soft, Damp
40		CL	
45			WL = 47 ft.
50			Sandy Clay, Tan, Soft, Wet to Saturated
55		CL	
60			TD = 58 ft.
65			Bailed and Developed well

Well: MW #2

Elev.:



Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING State NBF, MW #3

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

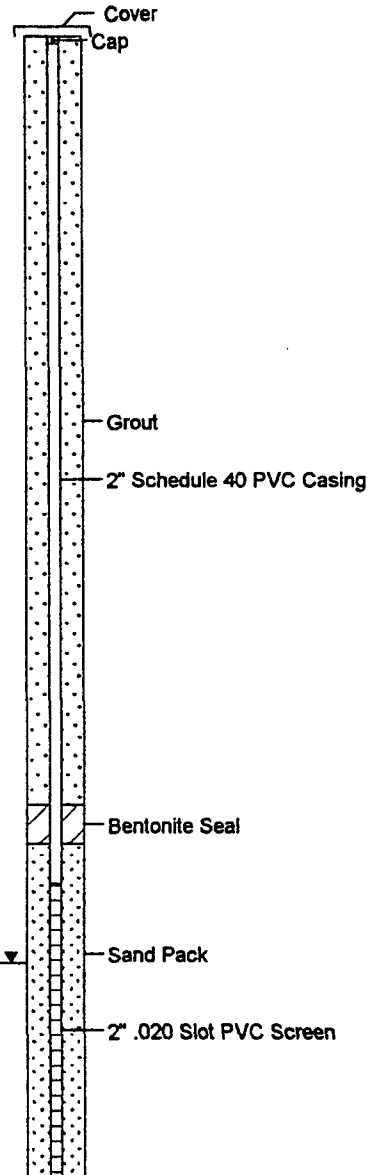
Date Completed : 10-1-97 Site Location : 17 miles W. of Tatum
Drill Start : 1:50 p.m. Auger Type : Hollow Stem
Drill End : 3:30 p.m. Logged By : Mort Bates
Boring Location : State NBF, Sec. 22; 150 ft. E. SE. of Center of Pit

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0			Caliche Rock w/Silty Clay, Tan, Hard, Dry
5			
10			Clay w/Caliche, Tan, Stiff, Dry
15			
20		CL	
25			
30		CL	Sandy Clay w/Caliche, Tan, Stiff, Dry
35			Sandy Clay, Tan, Stiff, Moist
40		CL	
45			
50		CL	Sandy Clay, Tan, Loose, Wet to Saturated WL = 47.08 ft.
55			
60			TD = 58 ft.
65			Bailed and Developed well

Well: MW #2

Elev.:





State NBF # 1
Water Sampling Results

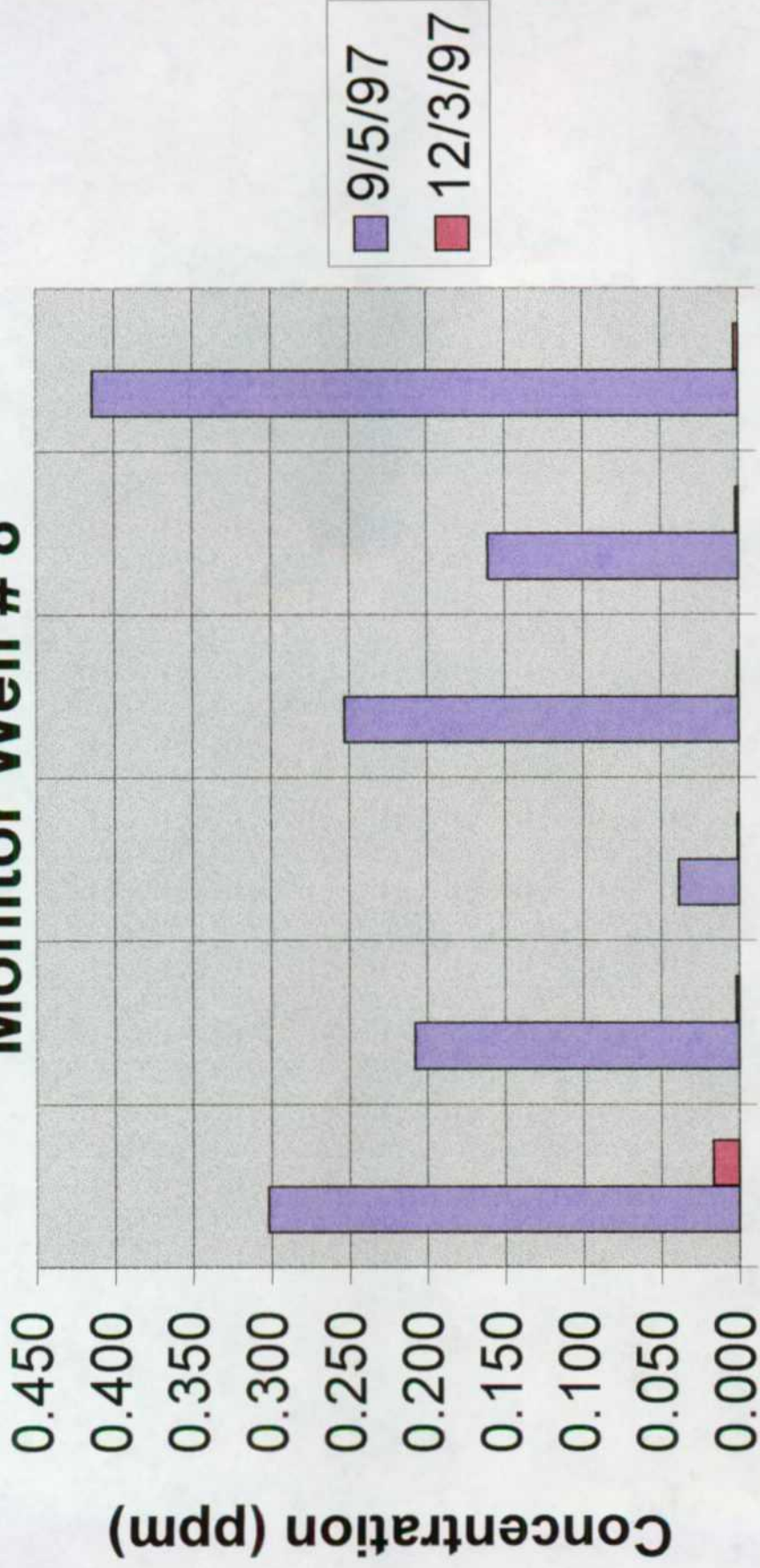
Sample I.D. (Lab)	ELT 12486	ELT 12729	ELT 12730	New Mexico WQCC Allowable Concentrations
Date Sampled	9/5/97	10/2/97	10/2/97	
Date Analyzed	9/9/97	10/5/97	10/5/97	
Source I.D.	M.W. # 8	M.W. # 15	MW # 16	

BTEX				
Benzene	0.302	1.950	0.835	0.010
Toluene	0.208	1.823	0.111	0.750
Ethylbenzene	0.039	0.381	0.090	0.750
m,p xylene	0.253	1.506	0.224	
o xylene	0.161	0.772	0.089	
(Ttl. Xylene)	0.414	2.278	0.313	0.620

Monitor Well # 8
State NBF # 1
Sampling Results

Lab. #	12486	13175
Sample Date	9/5/97	12/3/97
Benzene	0.302	0.017
Toluene	0.208	0.002
Ethylbenzene	0.039	0.001
m,p Xylene	0.253	0.001
o Xylene	0.161	0.002
Total Xylene	0.414	0.003
Total BTEX	1.377	0.023

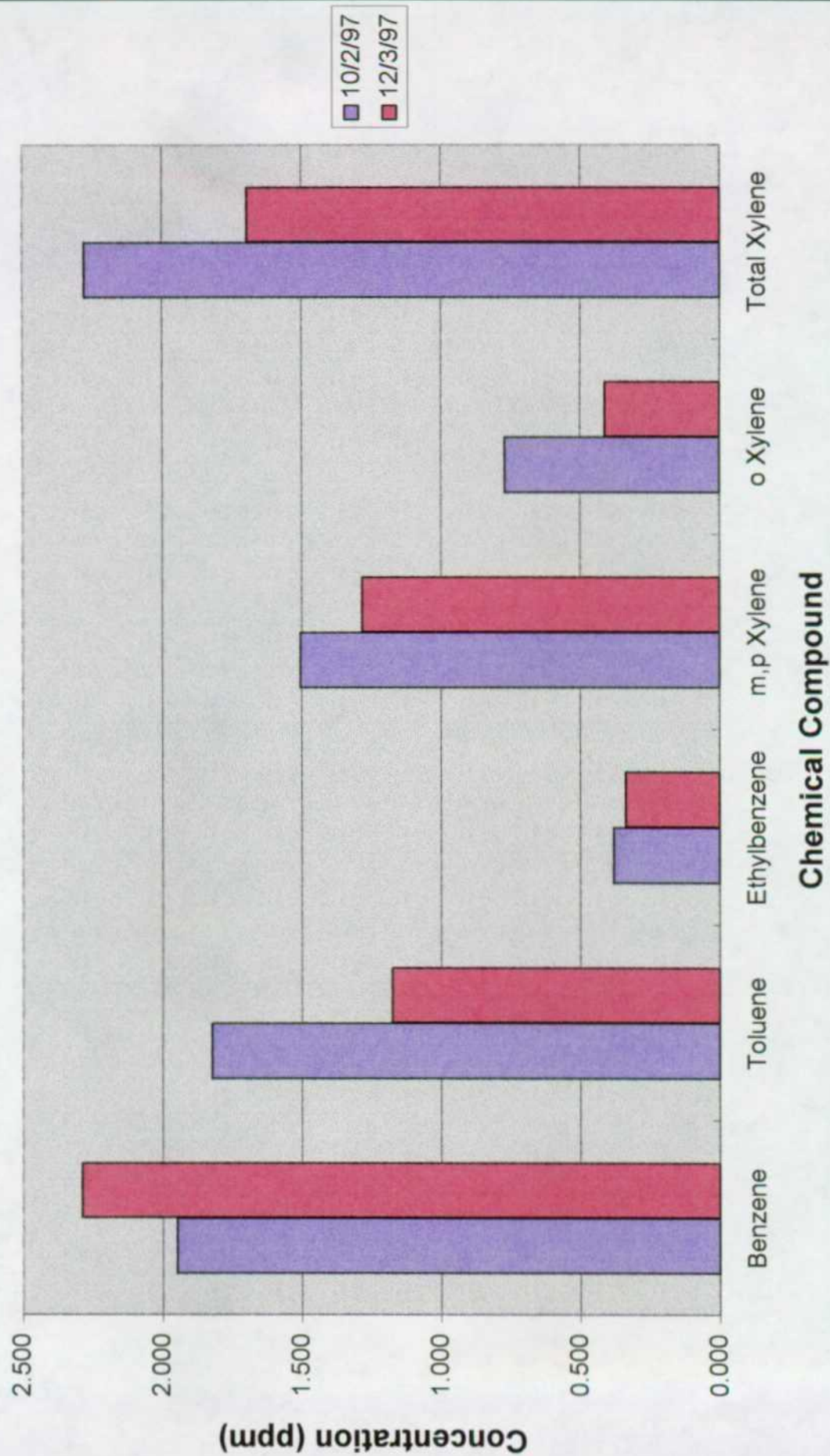
Monitor Well # 8



Monitor Well # 15
State NBF
Sampling Results

Lab #	12729	13133
Sample Date	10/2/97	12/3/97
Benzene	1.950	2.289
Toluene	1.823	1.176
Ethylbenzene	0.381	0.338
m,p Xylene	1.506	1.285
o Xylene	0.772	0.411
Total Xylene	2.278	1.696
Total BTEX	6.432	5.499

Monitor Well # 15



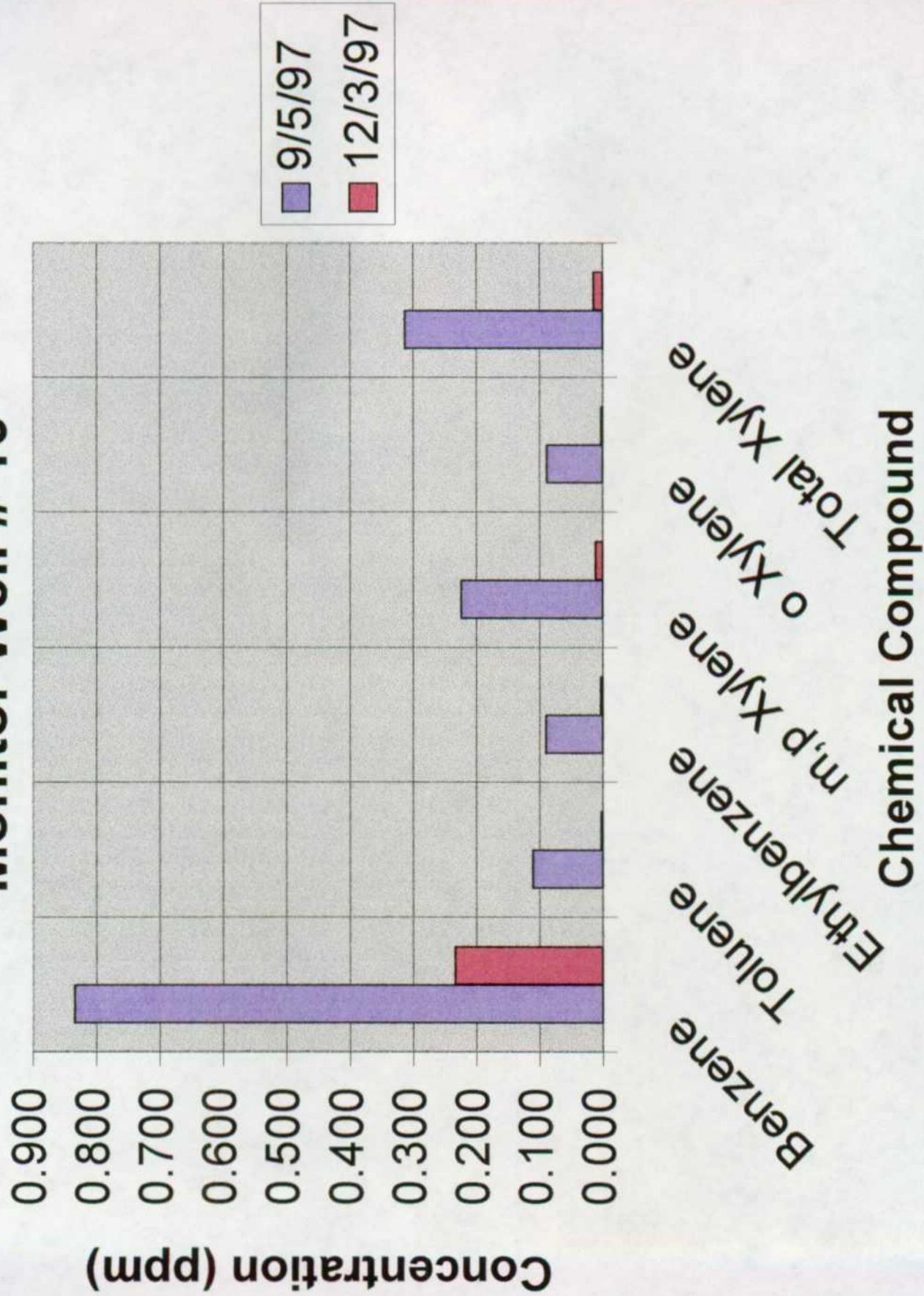
Monitor Well # 16

State NBF # 1

Sampling Results

Lab. #	12730	13176
Sample Date	9/5/97	12/3/97
Benzene	0.835	0.234
Toluene	0.111	0.003
Ethylbenzene	0.090	0.004
m,p Xylene	0.224	0.012
o Xylene	0.089	0.003
Total Xylene	0.313	0.015
Total BTEX	1.662	0.256

Monitor Well # 16



ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

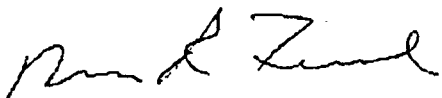
TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4358

Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13174	NBN MW-7	0.017	0.002	<0.001	0.001	0.002
13175	NBF MW-8	0.051	0.007	0.012	0.047	0.009
13176	NBF MW-16	0.234	0.003	0.004	0.012	0.003
13177	MABLE COM. MW-3	1.093	0.024	0.097	0.153	0.020
13178	MABLE COM. MW-4	1.465	0.007	0.017	0.010	0.002
13179	BELL A MW-G	0.029	0.004	0.002	0.030	0.003
13180	BELL A MW-13	0.002	0.001	<0.001	0.005	0.001
13181	BELL A MW-14	1.147	0.007	0.017	0.010	0.002
13182	IVA COM. MW-1	0.004	0.003	0.001	0.009	0.008
13183	IVA COM. MW-2	0.002	0.002	0.001	0.006	0.002
% IA		93	93	93	92	95
% EA		101	101	103	102	104
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030



Michael R. Fowler

12-5-97

Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

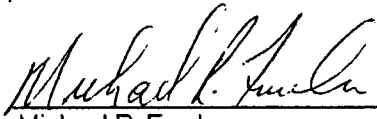
Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

TIPPERARY OIL & GAS CORP.
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267-0857
FAX: 505-398-6510

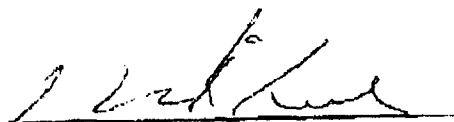
Receiving Date: 11/26/97
Sample Type: WATERS
Project: TATUM PIT CLOSURE
Project Location: NONE GIVEN

Analysis Date: 12/01/97
Sampling Date: 11/21/97
Sample Condition: Intact/loose

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13132	Solo A MW-11	0.057	0.009	0.007	0.035	0.016
13133	NBF MW-15	2.829	1.176	0.338	1.285	0.411
13134	GS MW-22	0.015	0.005	0.010	0.142	0.028

% IA	102	102	102	100	104
% EA	86	93	92	90	92
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020.5030


Michael R. Fowler

12-1-97
Date

ENVIRONMENTAL LAB OF , INC.

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WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

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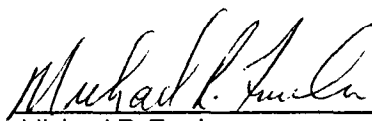
Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date



State NBF # 1
Soil Sampling Results

	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/20/97	8/20/97	8/20/97	8/20/97	8/20/97	8/29/97	
Date Tested	8/21/97	8/21/97	8/21/97	8/21/97	8/21/97	9/2/97	
ELT#	12245	12247	12246	12248	12249	12426	
							Allowable
Benzene	<.100	<.100	<.100	<.100	<.100	<.100	10.0
Toluene	0.125	<.100	0.107	0.103	<.100	<.100	
Ethylbenzene	<.100	<.100	0.201	<.100	<.100	<.100	
m,p Xylene	0.377	<.100	0.639	0.327	0.390	<.100	
o Xylene	0.245	<.100	0.898	0.254	0.247	<.100	
Total BTEX	747	ND	1.845	0.144	0.637	ND	50.0
TPH	1,063	<10	8,389	4,699	3,547	<10	10,000

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<100	<100	<100	0.105	<100	<10
12422	MABLE FINAL	<100	0.165	0.129	0.255	<100	11
12423	VERA FINAL	<100	0.126	<100	0.192	<100	10
12424	BELL FINAL	<100	<100	<100	<100	<100	24
12425	NBN FINAL	<100	<100	<100	<100	<100	103
12426	NBF FINAL	<100	<100	<100	<100	<100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6.702
12428	SOHIO 1 FINAL	<100	0.373	0.142	0.463	0.342	15.016
12429	G.S. FINAL	<100	<100	<100	<100	<100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<100	<100	<100	0.217	0.166	2.963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SV/ 846-8020, 5030, 8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

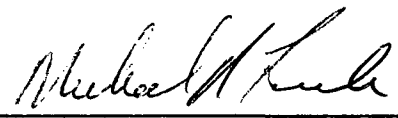
17
copies

Receiving Date: 08/21/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 08/21/97
Sampling Date: 08/20/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12239	NBN NORTH	<.100	<.100	<.100	0.168	<.100	<10
12240	NBN SOUTH	<.100	<.100	<.100	<.100	<.100	<10
12241	NBN EAST	<.100	0.571	0.409	2.547	0.85	1.222
12242	NBN WEST	<.100	<.100	<.100	0.144	<.100	21
12243	NBN BTM	<.100	0.149	0.14	0.303	0.151	1.965
12244	IVA BOTTOM (RE-TEST)	<.100	<.100	<.100	<.100	<.100	1.577
12245	NBF NORTH	<.100	0.125	<.100	0.377	0.245	1.063
12246	NBF SOUTH	<.100	0.107	0.201	0.694	0.898	8.389
12247	NBF EAST	<.100	<.100	<.100	<.100	<.100	<10
12248	NBF WEST	<.100	0.103	<.100	0.327	0.254	4.699
% IA		106	97	95	93	97	94
% EA		109	102	99	97	100	98
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-28-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL

ATTN: MR. MIKE GRIFFIN

19606 SAN GABRIEL

HOUSTON, TEXAS 77084

FAX: 1-281-646-8996

23 copies

Receiving Date: 08/21/97

Sample Type: SOIL

Project: TIPPERARY

Project Location: NONE GIVEN

Analysis Date: BTEX 08/21/97

Analysis Date: DRO 08/22/97

Sampling Date: 08/20/97

Sample Condition: Intact/Iced

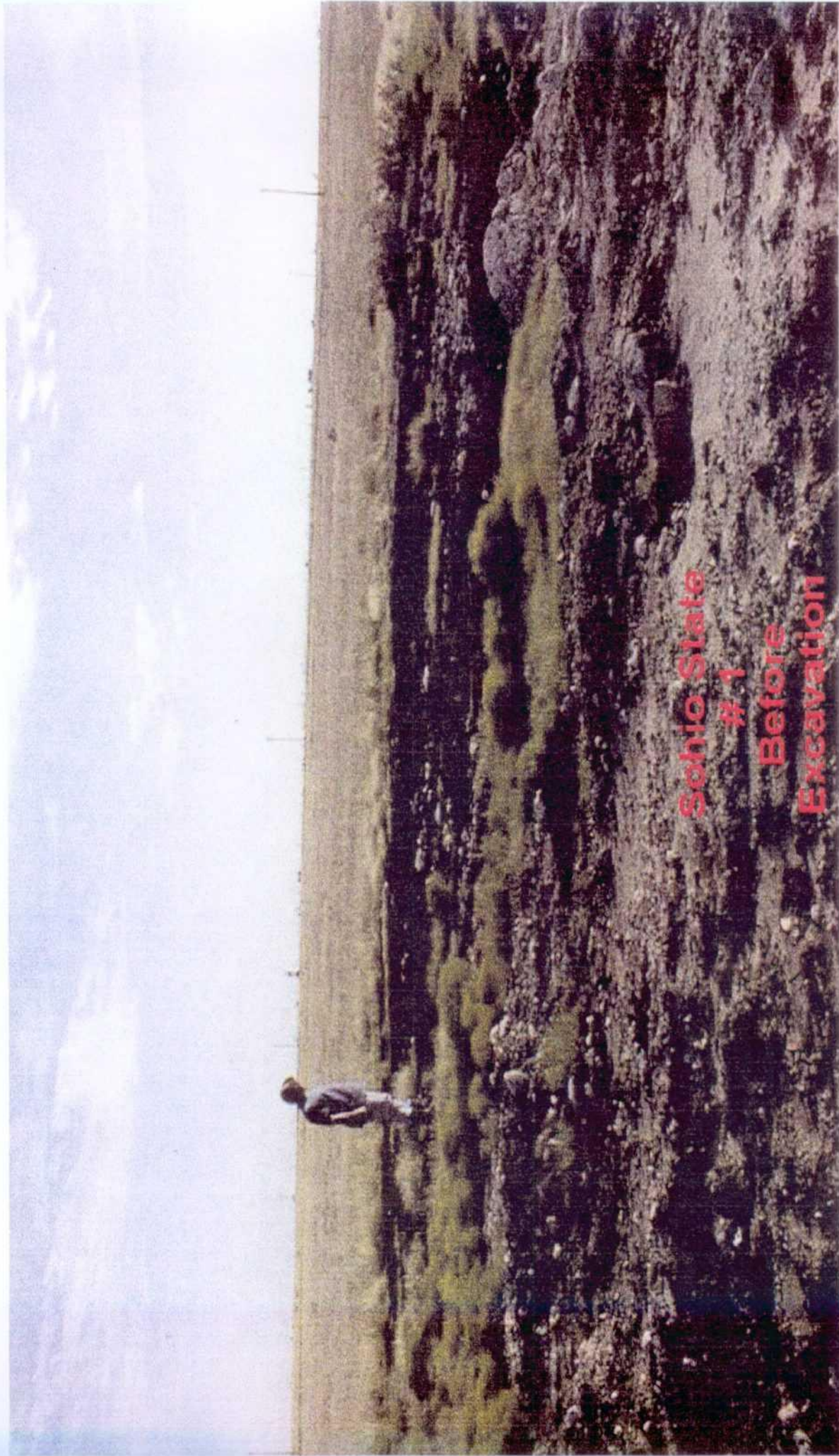
ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12249	NBF BOTM	<.100	<.100	<.100	0.390	0.247	3.547
12250	MABLE EAST (RE-TEST)	<.100	1.657	0.444	3.185	3.531	7.398
12251	BELL NORTH	<.100	0.841	0.376	1.917	2.475	5.746
12252	BELL SOUTH	<.100	<.100	<.100	0.18	<.100	<10
12253	BELL EAST	<.100	<.100	<.100	<.100	<.100	163
12254	BELL WEST	<.100	<.100	<.100	<.100	<.100	147
12255	BELL BOTTOM	<.100	0.186	<.100	0.250	0.391	3.951
12256	VERA NORTH	<.100	<.100	<.100	<.100	<.100	122
12257	VERA SOUTH	<.100	<.100	<.100	0.200	0.279	10
12258	VERA EAST	<.100	<.100	<.100	<.100	<.100	2,302
12259	VERA WEST	<.100	<.100	<.100	<.100	<.100	571
12260	VERA BOTTOM	<.100	<.100	<.100	<.100	<.100	89
	% IA	93	88	89	86	88	108
	% EA	111	104	100	96	100	100
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO



Michael R. Fowler

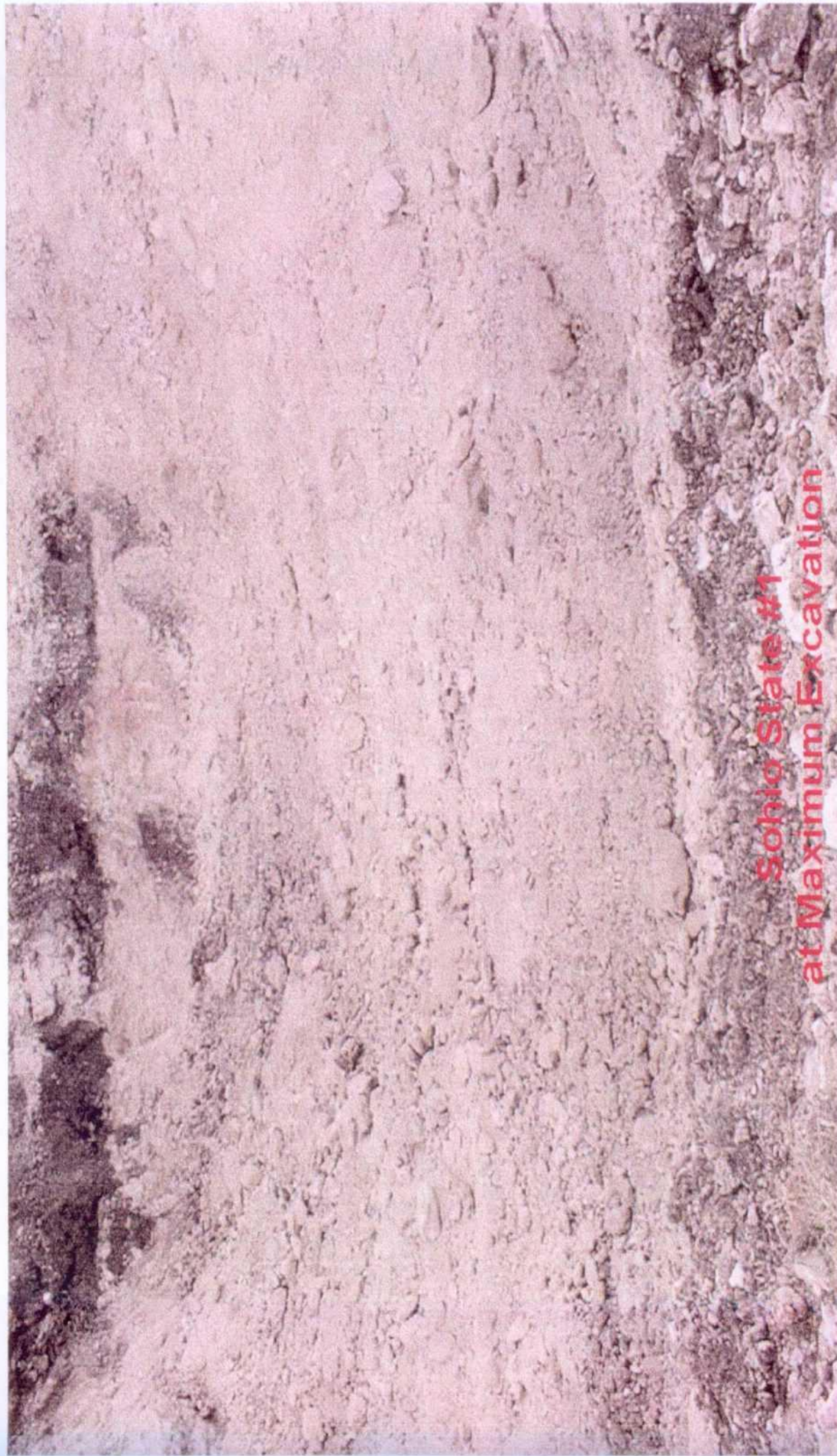
10-2797
Date



Schio State
1
Before
Excavation



Sohio State # 1
at Maximum Excavation



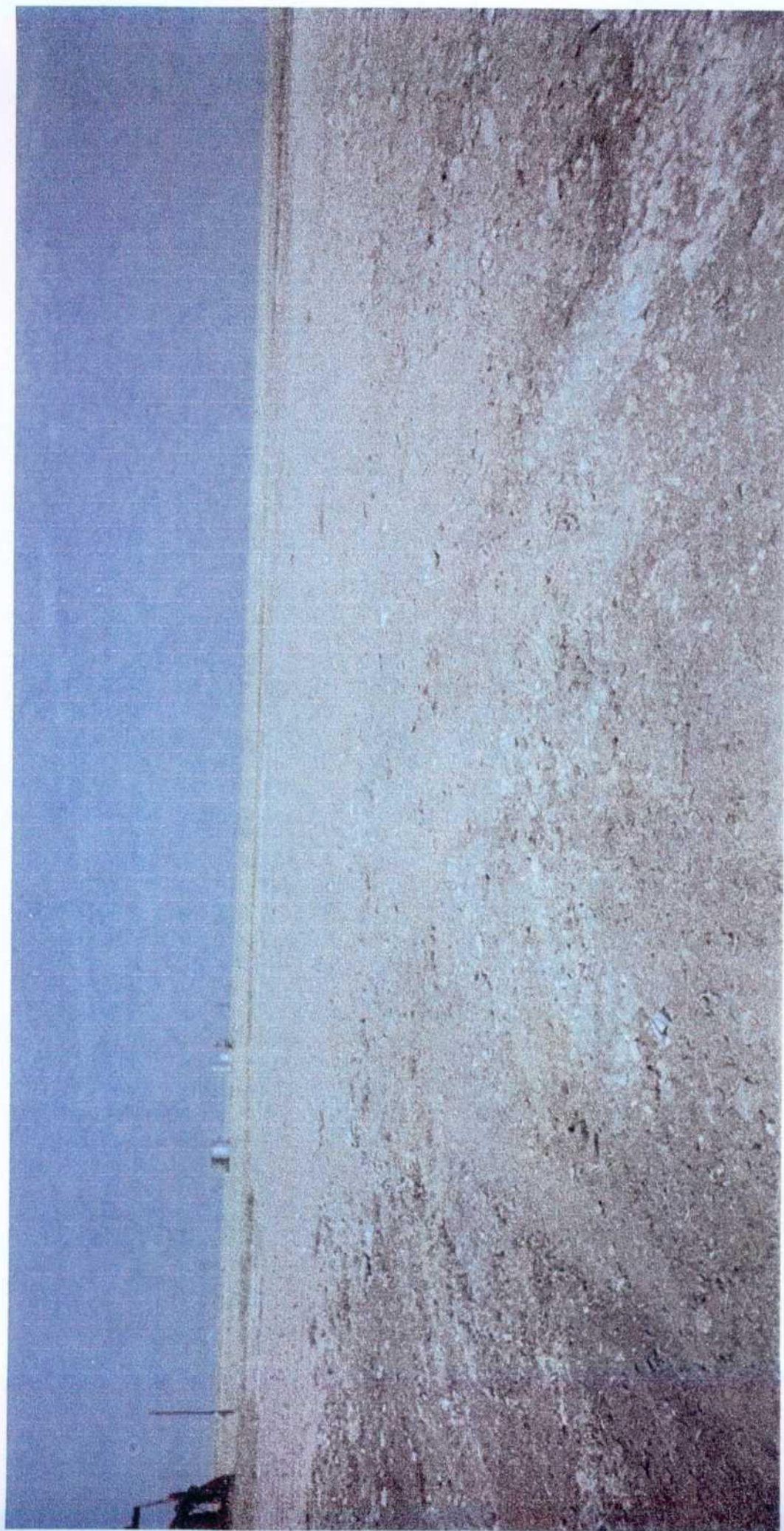
Sohio State #1
at Maximum Excavation

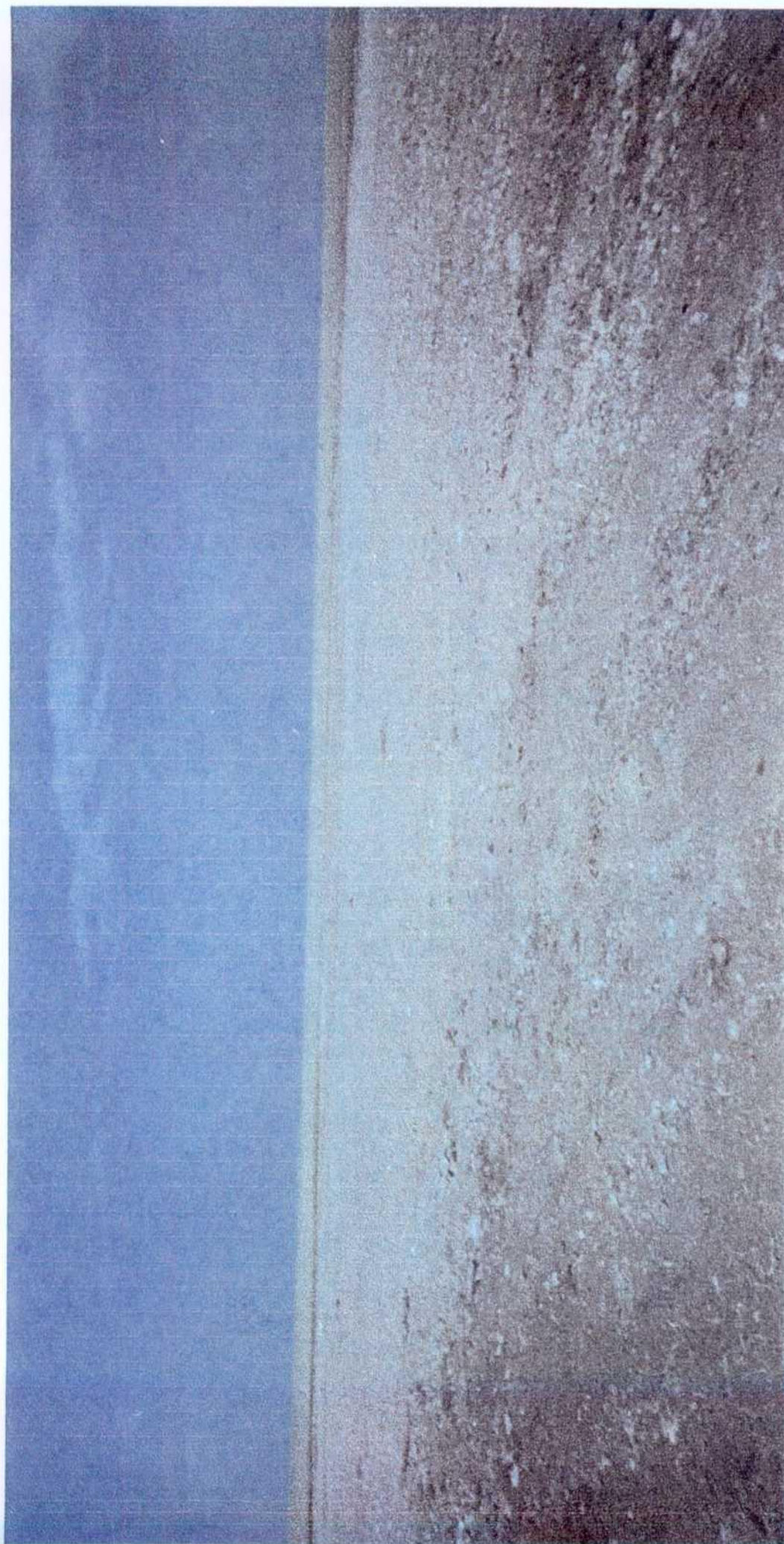


Sohlo # 1
Liner Detail

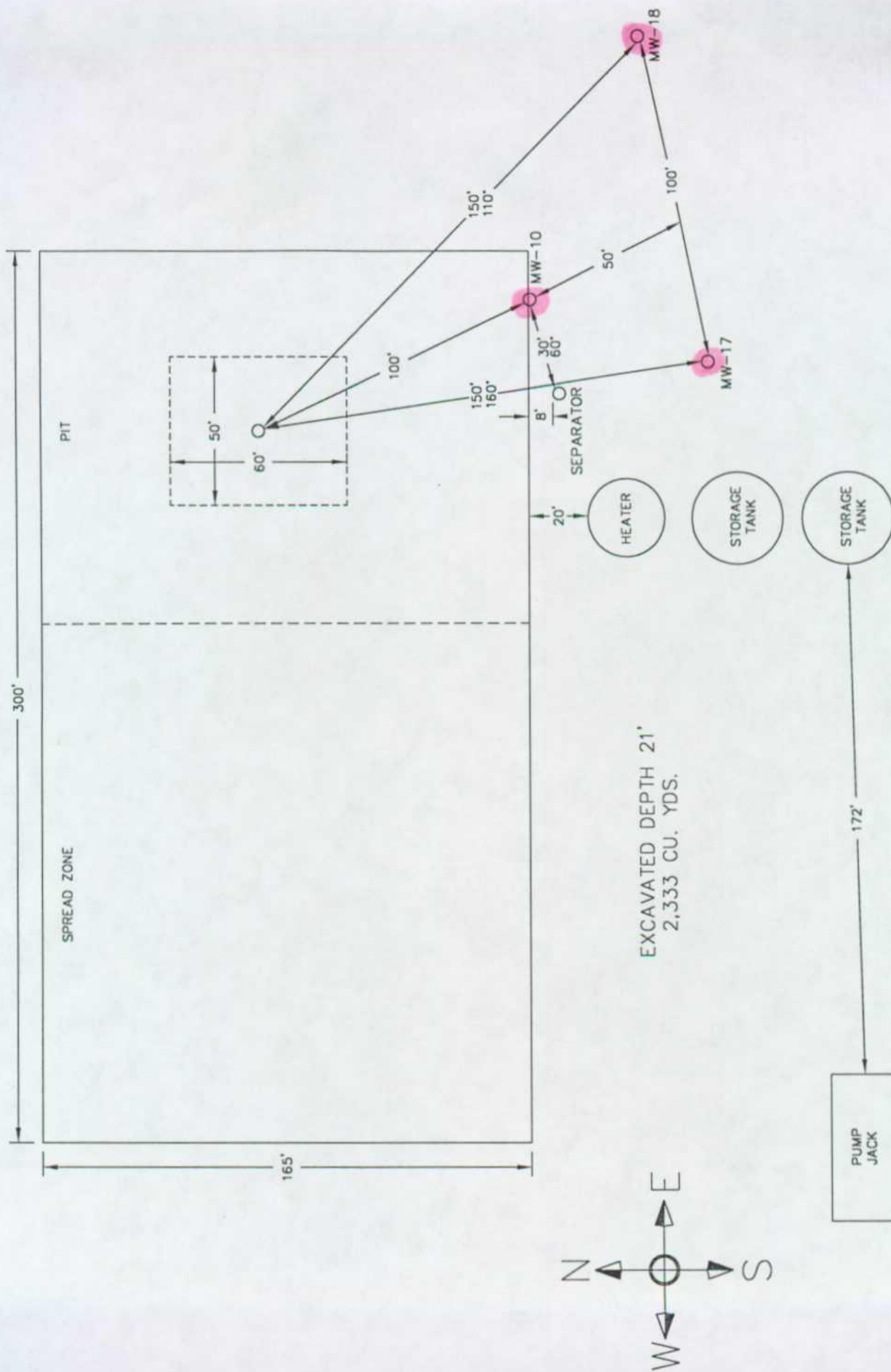


**Sohio # 1
Liner Detail**





SCHLIO STATE #1



Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156			LOG OF BORING Sohio, State #1 MW-1 (Page 1 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 29, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 0700 Auger Type : Hollow Stem Drill End : 0930 Logged By : Mort Baker Boring Location : Sohio State #1, Sec. 4, SE Corner of Pk		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
0			Silty Clay, brown, stiff, dry	Well: MW-1 Elev.: 8"x12" monitor well cover with 2'x2' concrete base Cap Concrete 2 in. schedule 40, pvc casing Grout
5	CL			
10			Caliche Rock, clayey, tan to brown, stiff, dry	
15				
20			Caliche, Silty Clay, tan, stiff, damp	
25	CL			
30				

09-05-1997 c:\mydata\hms\scapper\hwallp bor

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Sohio, State #1 MW-1 (Page 2 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 28, 1997 Drill Start : 0700 Drill End : 0030 Boring Location : Sohio State #1, Sec. 4, SE Corner of Pl		Site Location : 17 mi. W of Tatum, NM Auger Type : Hollow Stem Logged By : Mort Bates

Depth in feet	GRAPHIC	USCS	DESCRIPTION	Well: MW-1 Elev.:
30		CL		
			Clayey Sand, silty, caliche, tan, loose, damp	
35		SC		
			Clayey Sand, silty, tan, loose, damp	
40		SC		
45		SC		
50		CL		
			Sandy Clay, tan, loose, moist	
55		CL		
			Sandy Clay, tan, loose, saturated Water Level = 50 ft.	
60		CL		
			TD=60 ft.	

08-06-1997 a:\eng\sohio\state#1\well#1.bor

Grout

2 in. schedule 40, pvc casing

Bentonite Seal

Sand Pack

.020 slot screen, 2 in. ID

Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING Sohio State 1, MW #2

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

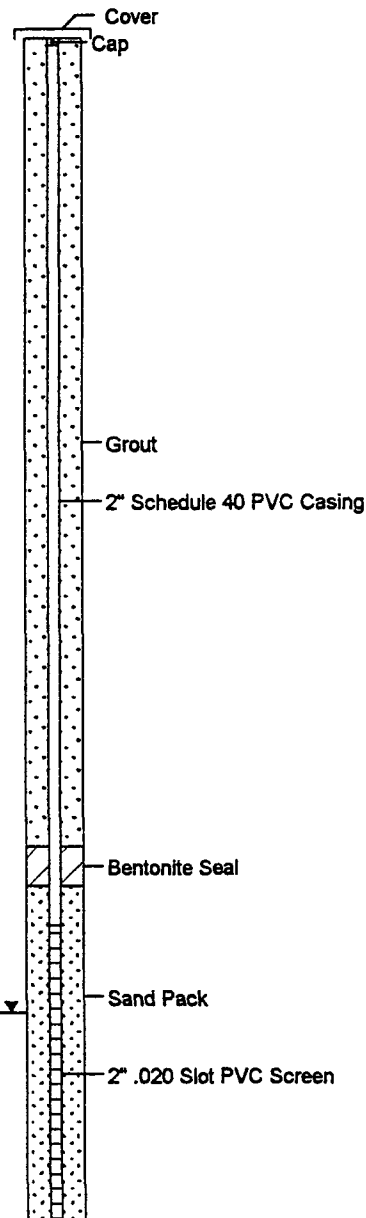
Date Completed : 9-29-97 / 10-1-97
Drill Start : 4:25 p.m. / 7:10 a.m.
Drill End : 5:15 p.m. / 9:00 a.m.
Boring Location : Sohio State 1, Sec. 4; 150 ft. E. SE. of Ctr of Pit

Site Location : 17 miles W. of Tatum
Auger Type : Hollow Stem
Logged By : Mort Bates

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0		CL	Silty Clay w/Caliche, Brown, Stiff, Damp
5			Silty Clay w/Caliche, Tan, Stiff, Dry
10		CL	
15			
20			
25			Clay w/Caliche, Tan, Stiff, Dry
30		CL	
35			Silty Sandy Clay, Tan, Stiff, Damp
40		CL	
45			
50		CL	Silty Sandy Clay, Tan, Stiff, Moist
55		SM	Silty Sand, Tan, Loose, Saturated WL = 49.37 ft.
60			TD = 60 ft. Bailed well for 45 mins
65			

Well: MW #2
Elev.:



Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING Sohio State 1, MW #3

(Page 1 of 1)

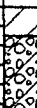
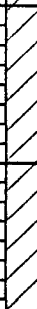
Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

Date Completed : 10-1-97
Drill Start : 9:10 a.m.
Drill End : 11:45 a.m.
Boring Location : Sohio State

Site Location : 17 miles W. of Tatum
Auger Type : Hollow Stem
Logged By : Mort Bates

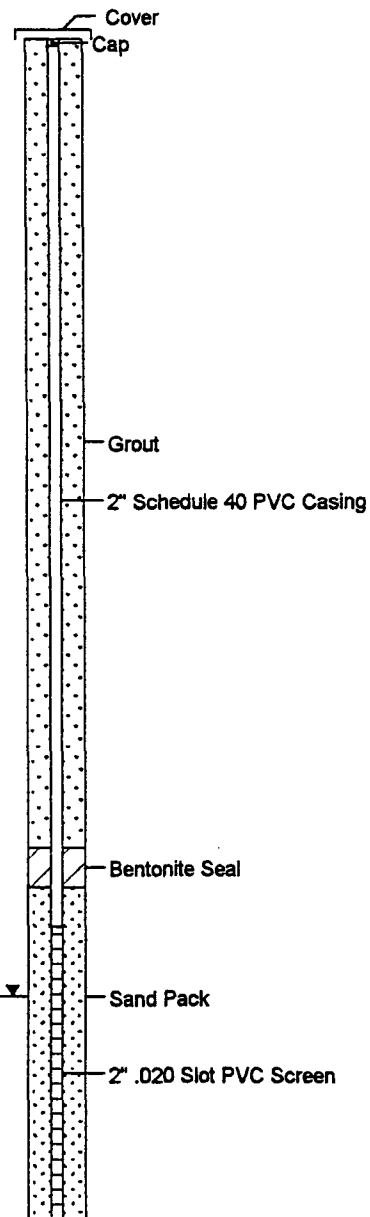
Boring Location : Sohio State 1, Sec. 4; 150 ft. S. SE. of Center of Pit

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0		CL	Clay w/Caliche Rock, Brown, Stiff, Damp
5			Caliche Rock w/Silty Clay, Hard, Dry
10			Clay w/Caliche, Tan, Stiff, Dry
15		CL	
20			Sandy Clay w/Caliche, Tan, Stiff, Dry
25			
30		CL	
35			
40			Silty Sandy Clay, Tan, Stiff, Damp
45		CL	
50			Silty Sandy Clay w/Gravel, Tan, Loose, Wet to Saturated WL = 48.58 ft.
55		CL	
60			TD = 60 ft.
65			Bailed and Developed well

Well: MW #3

Elev.:



10-03-199: c:\geo46\lpperary\9726013.bor

Modeling Data Entry Sohio State "#1"

Control Data	Entry	U / M
Deterministic	Yes	
Monte Carlo	No	
Evaporation	No	
Biodecay	No	
Low Permeability Layer Below Contamination	No	

Source Data		
Waste Zone Thickness	19	ft.
Waste Zone Area	7,200	sq. ft.
Ratio of Length to Width	1	
Soil Thickness Above Waste Zone	12	ft.
Contaminant Concentration in Soil / Waste Zone	10	ppm
Hydrocarbon Concentration in Soil / Waste Zone	10,000	ppm

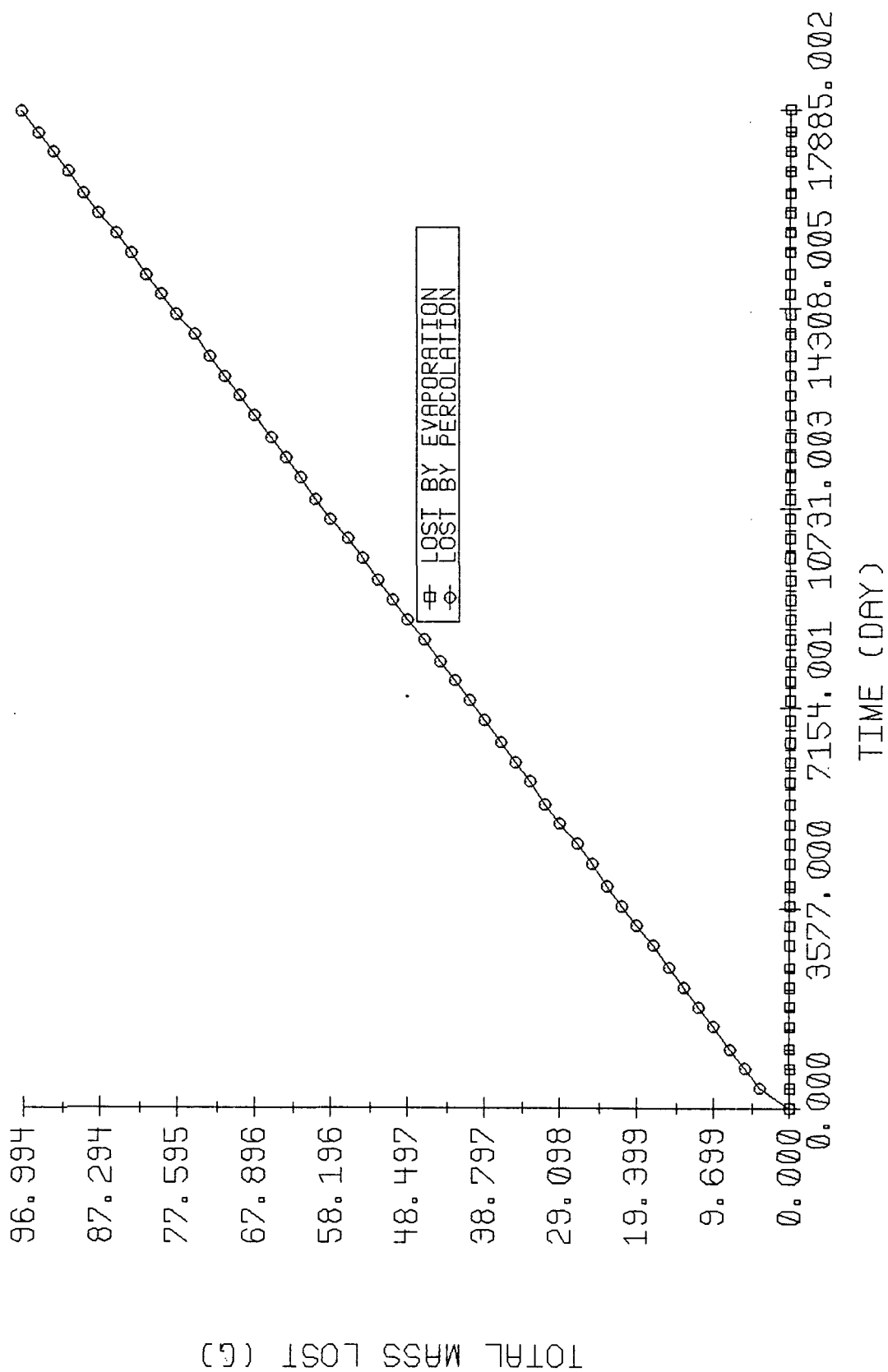
Chemical Data	
Benzene	Yes

Unsaturated Zone		
Biodecay Coefficient	0	
Organic Carbon Fraction	0	
Soil Database	Clay	
Hydrological Database	Sedimentary	
Unsaturated Zone Thickness	1	meter
Soil Database	Clay	
van Genuchten n	1.09	(Default)
Residual Water Content	0.01001	
Unsaturated Zone Dispersivity	0	Internally

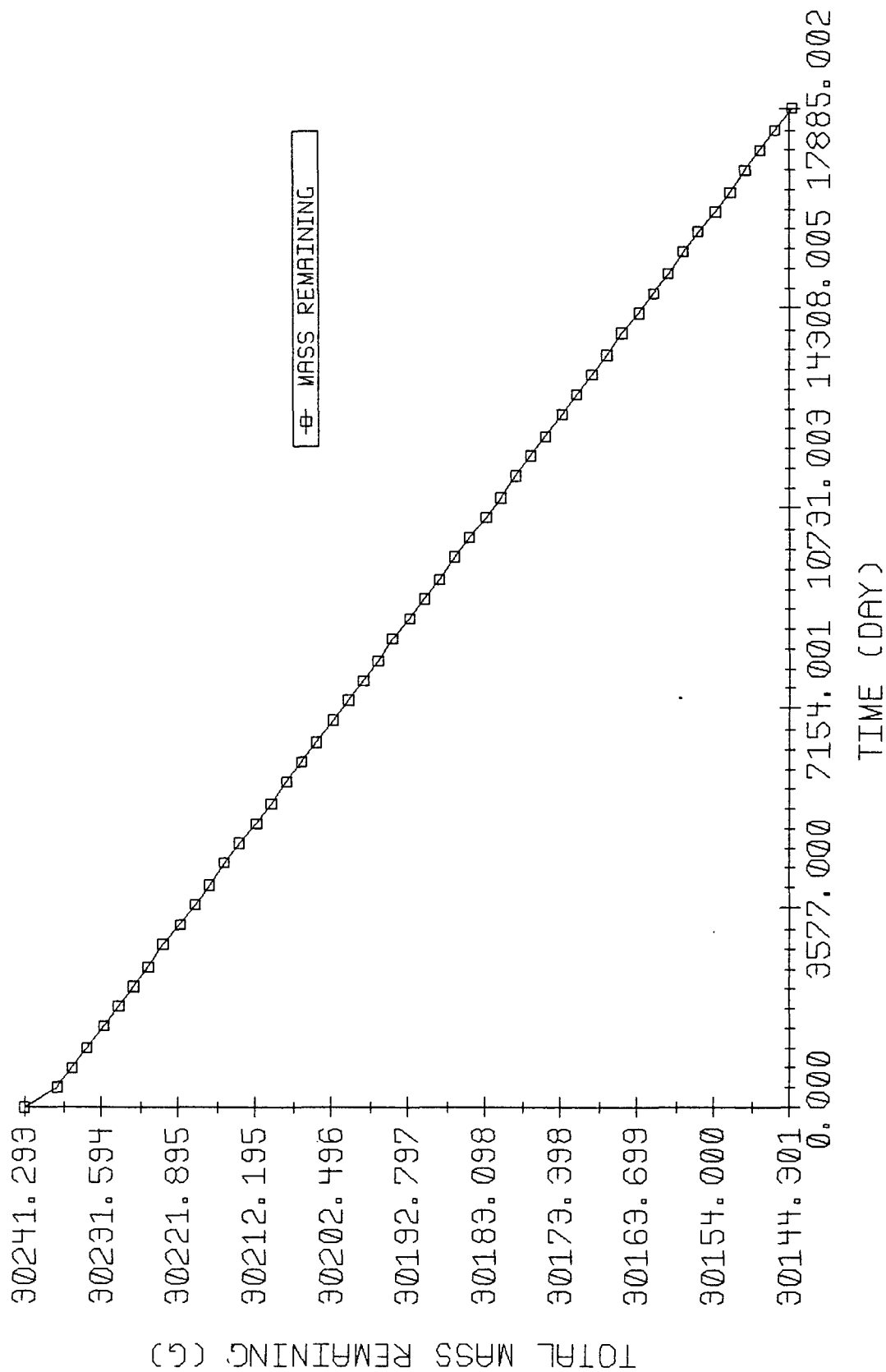
Saturated Zone		
Biodecay Coefficient	0	
Aquifer Porosity	0.2	(Default)
Organic Carbon Fraction	0	
Longitudinal Dispersivity	0	Internally
Ratio of Long. / Trans. Dispersivities	3	
Ratio of Trans. / Vert. Dispersivities	3	
Hydrological Database	Sedimentary	
Aquifer Thickness	60	ft. / day
Aquifer Gradient	0.00357	
Saturated Hydraulic Conductivity	0.0986	ft. / day

Net Infiltration Rate	0.00001	ft. / day
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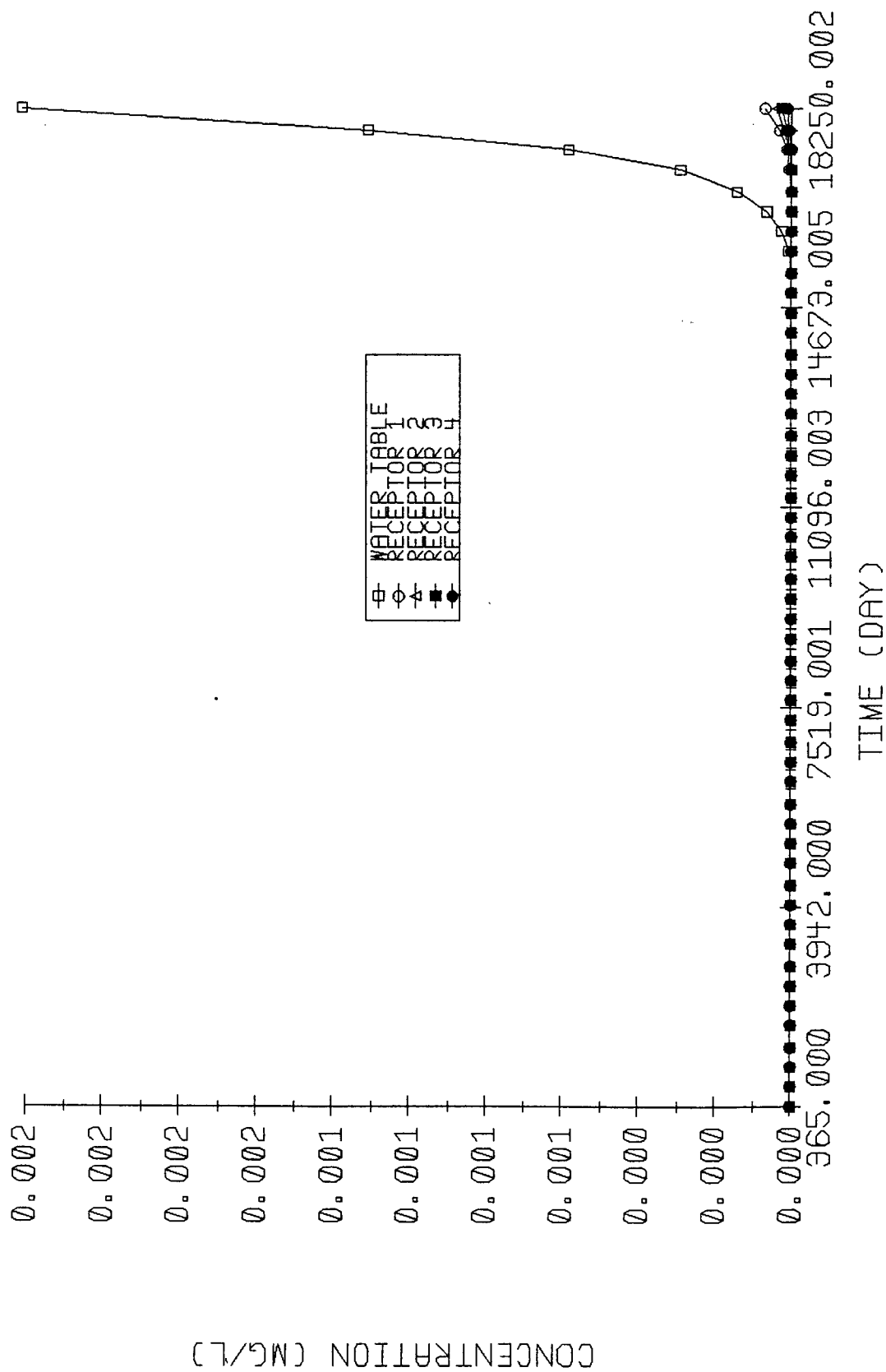
MASS LOST VS TIME



MASS REMAINING VS TIME



CONCENTRATION VS. TIME



ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4358

Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13184	VERA MW-5	0.002	0.001	0.003	0.014	0.005
13185	G.S. STATE MW-21	0.166	0.013	0.059	0.705	0.010
13186	SOHIO STATE "1" MW-10	2.148	0.062	0.173	0.930	0.313
13187	SOHIO STATE "1" MW-17	1.409	0.053	0.116	0.535	0.192
13188	SOHIO STATE "1" MW-16	2.062	0.178	0.118	<0.001	<0.001
13189	SOHIO STATE "A" MW-19	0.009	0.002	0.003	0.541	0.318
13190	SOHIO STATE "A" MW-20	0.284	0.005	0.008	0.044	0.004
13191	SAT "4" MW-9	0.067	0.009	0.006	0.033	0.008
13192	SAT "4" MW-23	0.040	0.012	0.009	0.042	0.019
13193	SAT "4" MW-24	0.017	0.006	0.005	0.025	0.011

% IA	93	93	93	92	95
% EA	101	101	103	102	104
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

12-5-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/08/97
Sample Type: WATER
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 09/09/97
Sampling Date: 09/05/97, 09/06/97
Sample Condition: Intact/Ice

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12475	IVA COM MW#1	<.001	<.001	<.001	0.002	0.007
12476	IVA COM MW#2	<.001	<.001	<.001	<.001	<.001
12477	IVA COM SW	3.129	2.551	0.209	1.182	0.094
12478	GS #12	1.834	0.055	0.061	3.085	0.084
12481	BELL #6	0.687	0.013	0.024	0.060	0.006
12482	NBN #7	<.001	<.001	<.001	<.001	<.001
12483	SOHIO 1 #10	2.559	1.148	0.243	1.257	0.081
12484	SOHIO A #11	0.096	0.004	0.002	0.008	0.012
12485	SAT 4 #9	0.092	0.010	0.015	0.082	0.002
12486	NBF #8	0.302	0.208	0.039	0.253	0.161
12487	VERA #5	0.003	0.003	0.005	0.021	0.029
12488	MABLE MW #3	0.010	0.008	0.031	0.139	0.012
12489	MABLE MW #4	0.015	0.002	0.002	0.010	0.002
% IA		111	111	112	111	113
% EA		113	112	114	112	111
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020, 5030


Michael R. Fowler

9-10-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

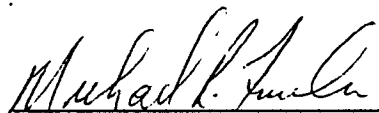
Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

4/1 Copies

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date



Sohio State # 1
Soil Sampling Results

	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/28/97	8/28/97	8/28/97	8/28/97	8/28/97	10/27/97	
Date Tested	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97	10/28/97	
ELT#	12391	12392	12393	12394	12395	12943	
							Allowable
Benzene	<.100	<.100	<.100	<.100	<.100	<.100	10.0
Toluene	121	0.222	<.100	<.100	<.100	0.238	
Ethylbenzene	<.100	0.112	<.100	<.100	<.100	0.151	
m,p Xylene	<.100	0.703	0.760	<.100	0.102	0.338	
o Xylene	<.100	0.440	0.334	<.100	<.100	0.146	
Total BTEX	121	1.477	1.094	ND	0.102	0.873	50.0
TPH	<10	36	786	25	<10	10	10,000

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 10/28/97
Sample Type: SOIL
Project: TIPPERARY
Project #: TATUM PIT CLOSURE
Project Location: TATUM, NEW MEXICO

Analysis Date: 10/28/97
Sampling Date: 10/27/97
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH mg/kg
12942	Sat. 4 Surface Retest	<0.100	<0.100	<0.100	<0.100	<0.100	100
12943	Sohio State #1 Surface Retest	<0.100	0.238	0.151	0.338	0.146	10

% IA	88	90	91	88	91	100
% EA	94	98	99	96	98	117
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,EPA 418.1


Michael R. Fowler

10-28-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<.100	<.100	<.100	0.105	<.100	<10
12422	MABLE FINAL	<.100	0.165	0.129	0.255	<.100	11
12423	VERA FINAL	<.100	0.126	<.100	0.192	<.100	10
12424	BELL FINAL	<.100	<.100	<.100	<.100	<.100	24
12425	NBN FINAL	<.100	<.100	<.100	<.100	<.100	103
12426	NBF FINAL	<.100	<.100	<.100	<.100	<.100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6,702
12428	SOHIO 1 FINAL	<.100	0.373	0.142	0.463	0.342	15,016
12429	G.S. FINAL	<.100	<.100	<.100	<.100	<.100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<.100	<.100	<.100	0.217	0.166	2,963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SW 846-8020, 5030, 8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Receiving Date: 08/29/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 08/29/97
Sampling Date: 08/28/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12380	GULF STATE N	<.100	<.100	<.100	0.121	<.100	140
12381	GULF STATE S	0.668	0.620	0.687	1.458	0.639	1,655
12382	GULF STATE E	<.100	<.100	0.116	0.447	0.268	2.001
12383	GULF STATE W	<.100	0.198	0.332	0.926	0.875	3,268
12384	GULF STATE BOTTOM	0.246	9.990	6.921	46.02	20.95	4,058
12385	SATELLITE 4 N	<.100	<.100	<.100	0.216	0.105	101
12386	SATELLITE 4 E	<.100	<.100	<.100	<.100	<.100	111
12387	SATELLITE 4 S	<.100	<.100	<.100	0.292	0.198	44
12388	SATELLITE 4 W	<.100	<.100	<.100	0.192	<.100	11
12389	SATELLITE 4 B	<.100	0.280	0.533	1.786	1.290	259
12391	SOHIO ST. 1 N	<.100	0.121	<.100	<.100	<.100	<10
12392	SOHIO ST. 1 E	<.100	0.222	0.112	0.703	0.440	36
12393	SOHIO ST. 1 S	<.100	<.100	<.100	0.760	0.334	786
12394	SOHIO ST. 1 W	<.100	<.100	<.100	<.100	<.100	25
12395	SOHIO ST. 1 B	<.100	<.100	<.100	0.102	<.100	<10
12396	SOHIO ST. A N	<.100	<.100	<.100	<.100	<.100	10
12397	SOHIO ST. A E	<.100	<.100	<.100	<.100	<.100	29
12398	SOHIO ST. A S	<.100	<.100	<.100	<.100	<.100	10
12399	SOHIO ST. A W	<.100	<.100	<.100	0.110	<.100	10
12400	SOHIO ST. A B	<.100	<.100	<.100	0.136	<.100	<10
% IA		85	90	87	87	88	105
% EA		110	112	112	110	110	79
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Sohio A, State #1 MW-1 (Page 1 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 29, 1997 Site Location : 17 mi. W of Tatum, NM Drill Start : 0840 Auger Type : Hollow Stem Drill End : 1130 Logged By : Mori Bates Boring Location : Sohio A State #1, Sec. 4, SE Corner of PH		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
0	CL		Silty Clay, w/caliche, tan, stiff, dry	Well: MW-1 Elev.: 8"x12" monitor well cover with 2'x2' concrete base Cap Concrete
5				
10	CL		Caliche Rock, clayey, tan, stiff, damp	2 in. schedule 40, pvc casing Grout
15				
20	CL		Caliche Clay, sandy, tan, stiff, damp	
25				
30				

09-03-1997 c:\atkins\101\us\upper-shohio\log

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Sohio A, State #1 MW-1 (Page 2 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 29, 1997 Drill Start : 0940 Drill End : 1130 Boring Location : Sohio A State #1, Sec. 4, SE Corner of Pitt		Site Location : 17 mi. W of Tatum, NM Auger Type : Hollow Stem Logged By : Mori Sales

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
30	CL	CL	Caliche Rock, clayey, tan, hard, dry	Well: MW-1 Elev.:
35				
40	CL	CL	Sandy Clay, rusty yellow, stiff, damp	Grout 2 in. schedule 40, pvc casing Bentonite Seal
45				
50	SC	SC	Clayey Sand, rusty yellow, stiff, moist	Sand Pack .020 slot screen, 2 in. ID
55				
60	CL	CL	Sandy Clay, tan, loose, saturated Water Level = 50 ft.	
60				
			TD=60 ft.	

Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING Sohio State A MW #2

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

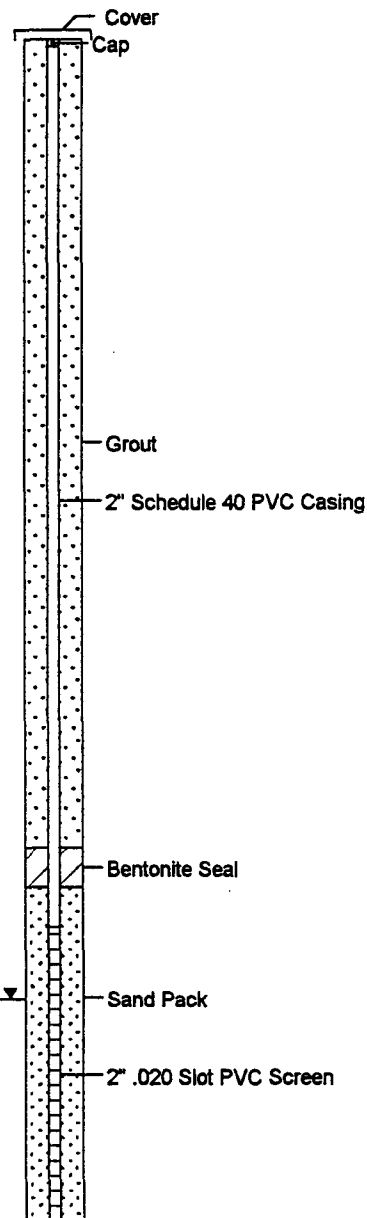
Date Completed : September 29, 1997 Site Location : 14 miles W. of Tatum
Drill Start : 11:10 a.m. Auger Type : Hollow Stem
Drill End : 2:00 p.m. Logged By : Mort Bates
Boring Location : Sohio State A, Sec. 4; 150 ft. S. SE. of Ctr of Pit

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0		CL	Silty Clay w/Caliche Rock, Brown, Stiff, Damp
5			Silty Clay w/Caliche, Tan, Stiff, Dry
10			
15			
20		CL	
25			
30			
35			Silty Sandy Clay, Tan, Stiff, Damp
40		CL	
45			
45	GP		Gravel w/Sandy Clay, Hard
50			Silty Sandy Clay, Tan, Loose, Wet to Saturated WL = 48.68 ft.
55		CL	
60			TD = 60 ft.
65			Bailed well for 45 mins

Well: MW #2

Elev.:



Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING Sohio State A MW #3

(Page 1 of 1)

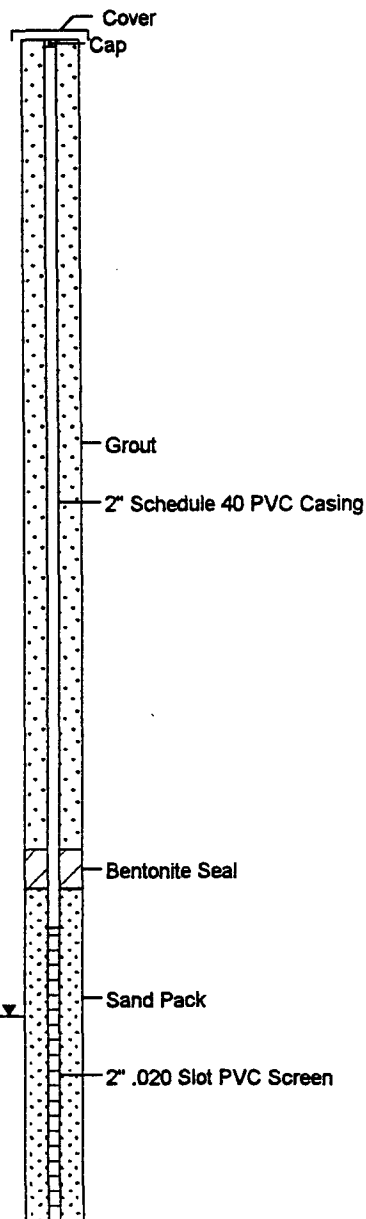
Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

Date Completed : September 29, 1997 Site Location : 14 miles W. of Tatum
Drill Start : 2:05 p.m. Auger Type : Hollow Stem
Drill End : 4:20 p.m. Logged By : Mort Bates
Boring Location : Sohio State A, Sec. 4; 150 ft. E. SE. of Center of Pit

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0		CL	Silty Clay w/Caliche, Brown, Stiff, Damp
5		CL	Silty Clay w/Caliche, Tan, Stiff, Dry
10			Caliche Rock w/Clay, Tan, Hard, Dry
15			Caliche w/Clay, Tan, Stiff, Dry
20		CL	Silty Sandy Clay w/Caliche, Tan, Stiff, Dry
25			
30			Silty Sandy Clay, Tan, Stiff, Dry
35		CL	
40			
45		CL	Silty Sandy Clay, Tan, Stiff, Moist
50			Silty Sandy Clay, Tan, Wet to Saturated WL = 49.5 ft.
55		CL	
60			TD = 60 ft.
65			Bailed well for 45 mins

Well: MW #3
Elev.:



Modeling Data Entry Sohio State "A"

Control Data	Entry	U / M
Deterministic	Yes	
Monte Carlo	No	
Evaporation	No	
Biodecay	No	
Low Permeability Layer Below Contamination	No	

Source Data		
Waste Zone Thickness	22	ft.
Waste Zone Area	2800	sq. ft.
Ratio of Length to Width	1	
Soil Thickness Above Waste Zone	10	ft.
Contaminant Concentration in Soil / Waste Zone	10	ppm
Hydrocarbon Concentration in Soil / Waste Zone	10,000	ppm

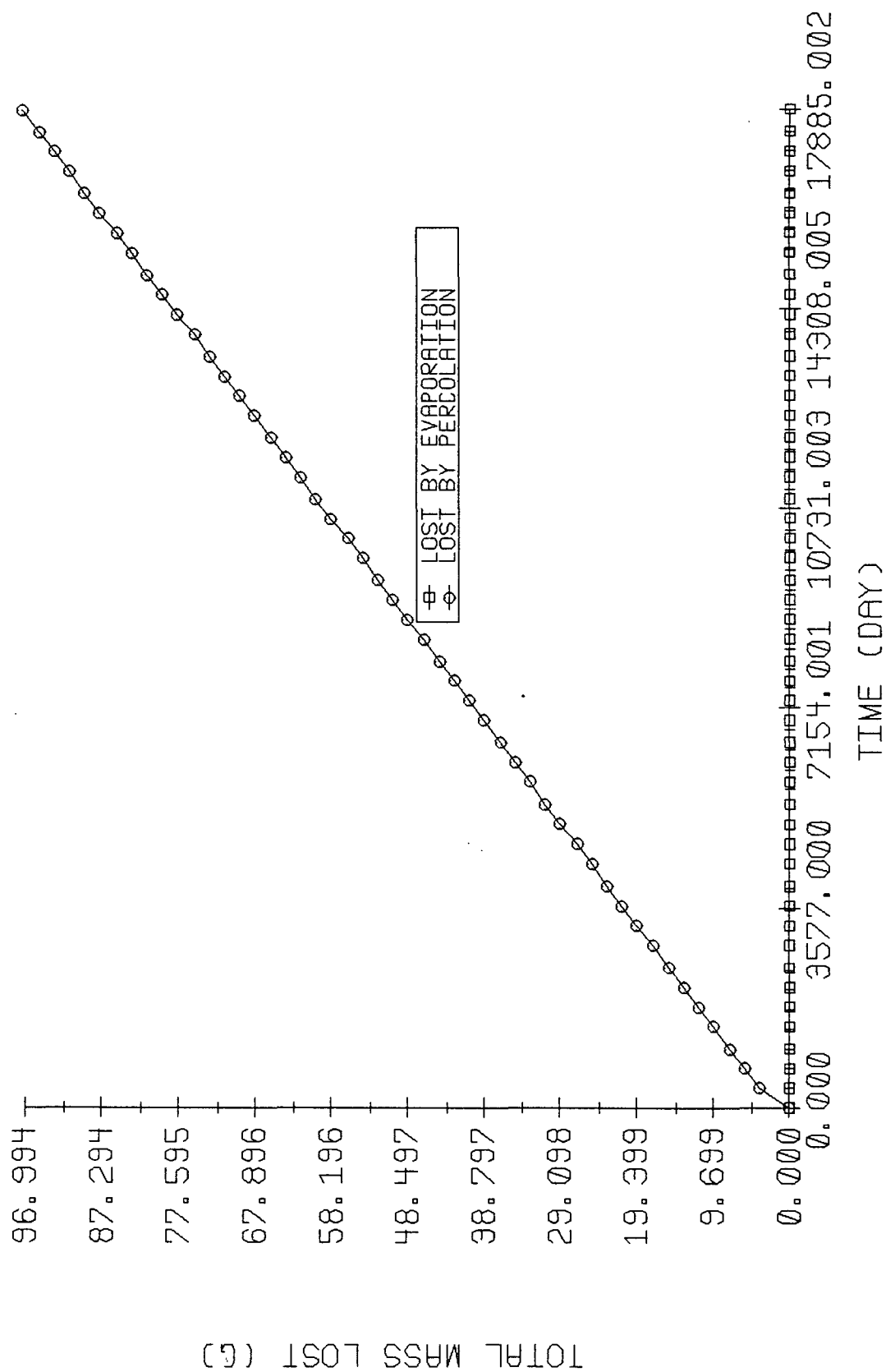
Chemical Data	
Benzene	Yes

Unsaturated Zone		
Biodecay Coefficient	0	
Organic Carbon Fraction	0	
Soil Database	Clay	
Hydrological Database	Sedimentary	
Unsaturated Zone Thickness	1	meter
Soil Database	Clay	
van Genuchten n	1.09	(Default)
Residual Water Content	0.01001	
Unsaturated Zone Dispersivity	0	Internally

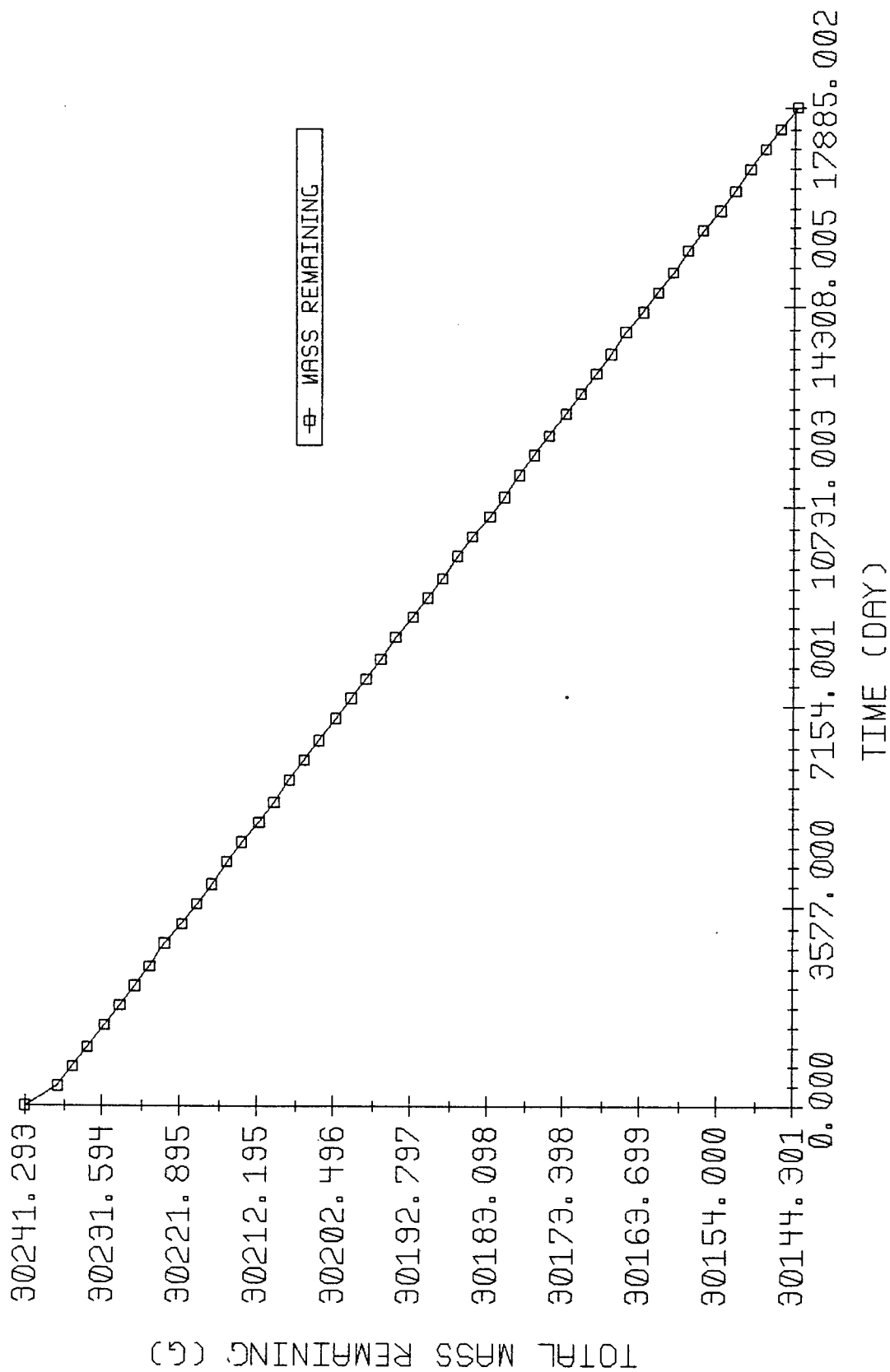
Saturated Zone		
Biodecay Coefficient	0	
Aquifer Porosity	0.2	(Default)
Organic Carbon Fraction	0	
Longitudinal Dispersivity	0	Internally
Ratio of Long. / Trans. Dispersivities	3	
Ratio of Trans. / Vert. Dispersivities	3	
Hydrological Database	Sedimentary	
Aquifer Thickness	60	ft. / day
Aquifer Gradient	0.00357	
Saturated Hydraulic Conductivity	0.0986	ft. / day

Net Infiltration Rate	0.00001	ft. / day
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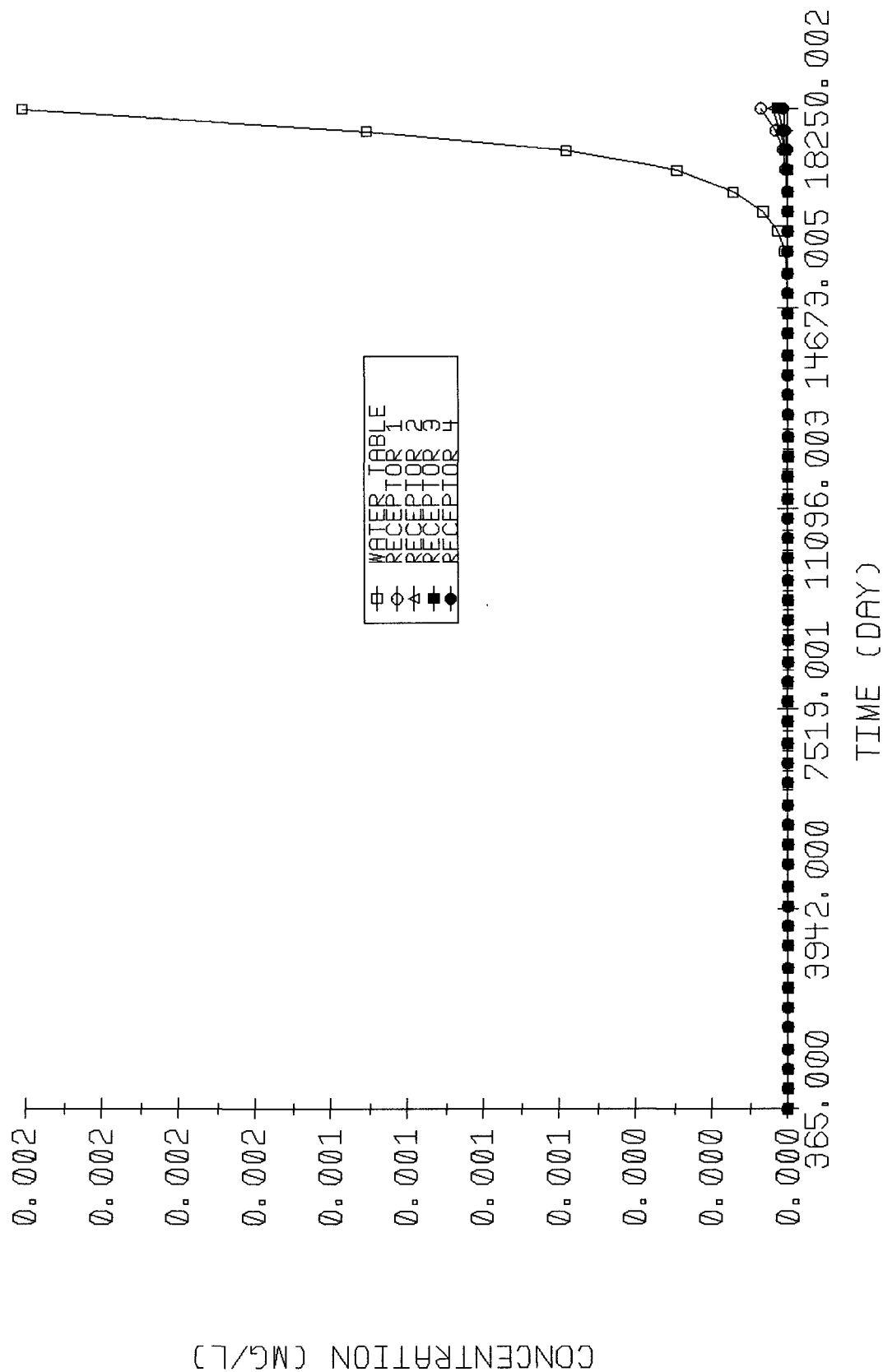
MASS LOST VS TIME



MASS REMAINING VS TIME



CONCENTRATION VS. TIME





Sohio State # 1
Water Sampling Results

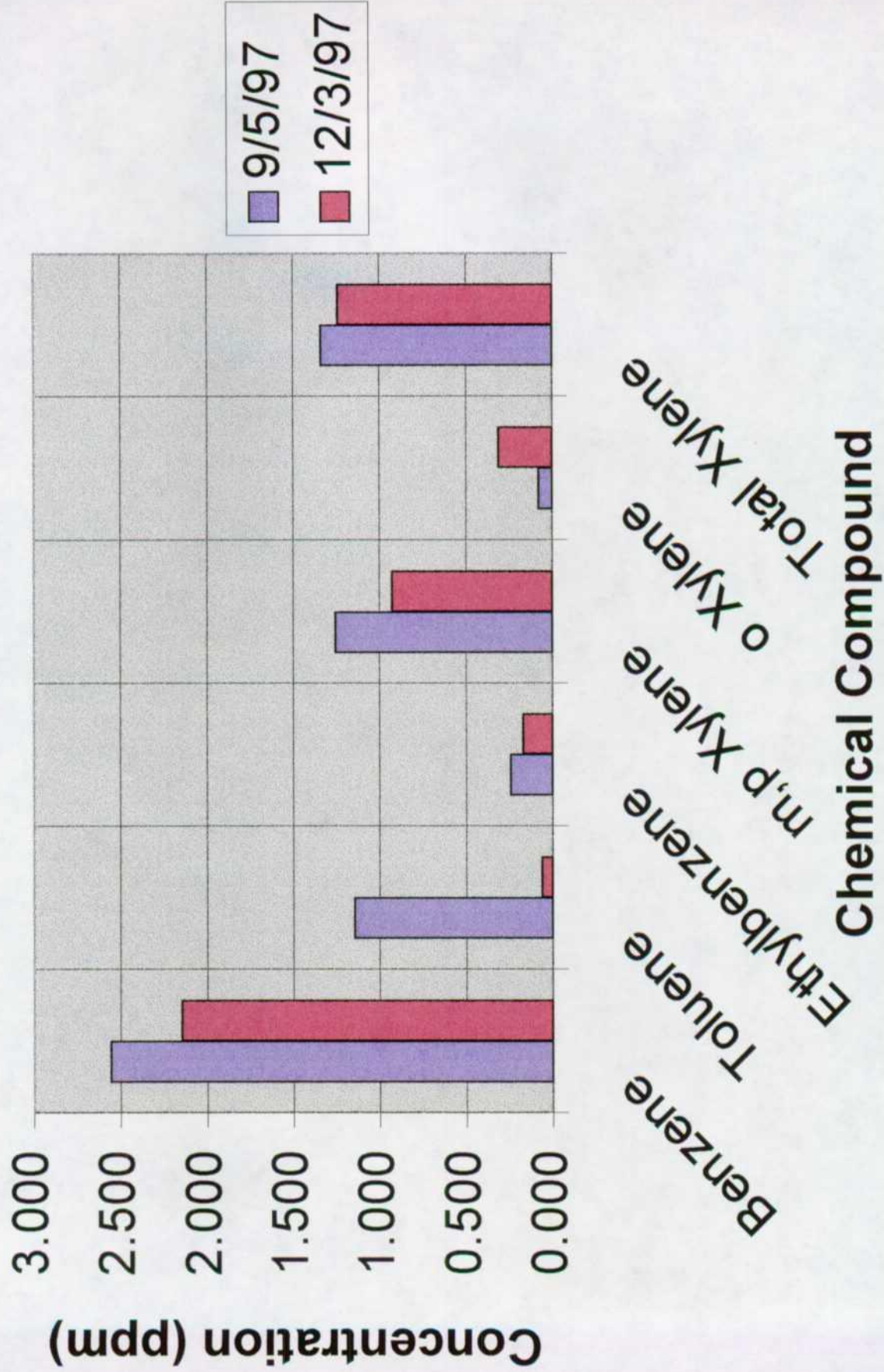
Sample I.D. (Lab)	ELT 12483	ELT 12723	ELT 12724	New Mexico WQCC Allowable Concentrations
Date Sampled	9/5/97	10/2/97	10/2/97	
Date Analyzed	9/9/97	10/5/97	10/5/97	
Source I.D.	M.W. # 10	M.W. # 17	M.W. # 18	

BTEX				
Benzene	2.559	0.799	1.276	0.010
Toluene	1.148	0.128	0.614	0.750
Ethylbenzene	0.243	0.141	0.206	0.750
m,p xylene	1.257	0.628	0.553	
o xylene	0.081	0.292	0.648	
(Ttl. Xylene)	1.338	0.920	1.201	0.620

Monitor Well # 10
Sohio State # 1
Sampling Results

Lab. #	12483	13186
Sample Date	9/5/97	12/3/97
Benzene	2.559	2.148
Toluene	1.148	0.062
Ethylbenzene	0.243	0.173
m,p Xylene	1.257	0.930
o Xylene	0.081	0.313
Total Xylene	1.338	1.243
Total BTEX	6.626	3.626

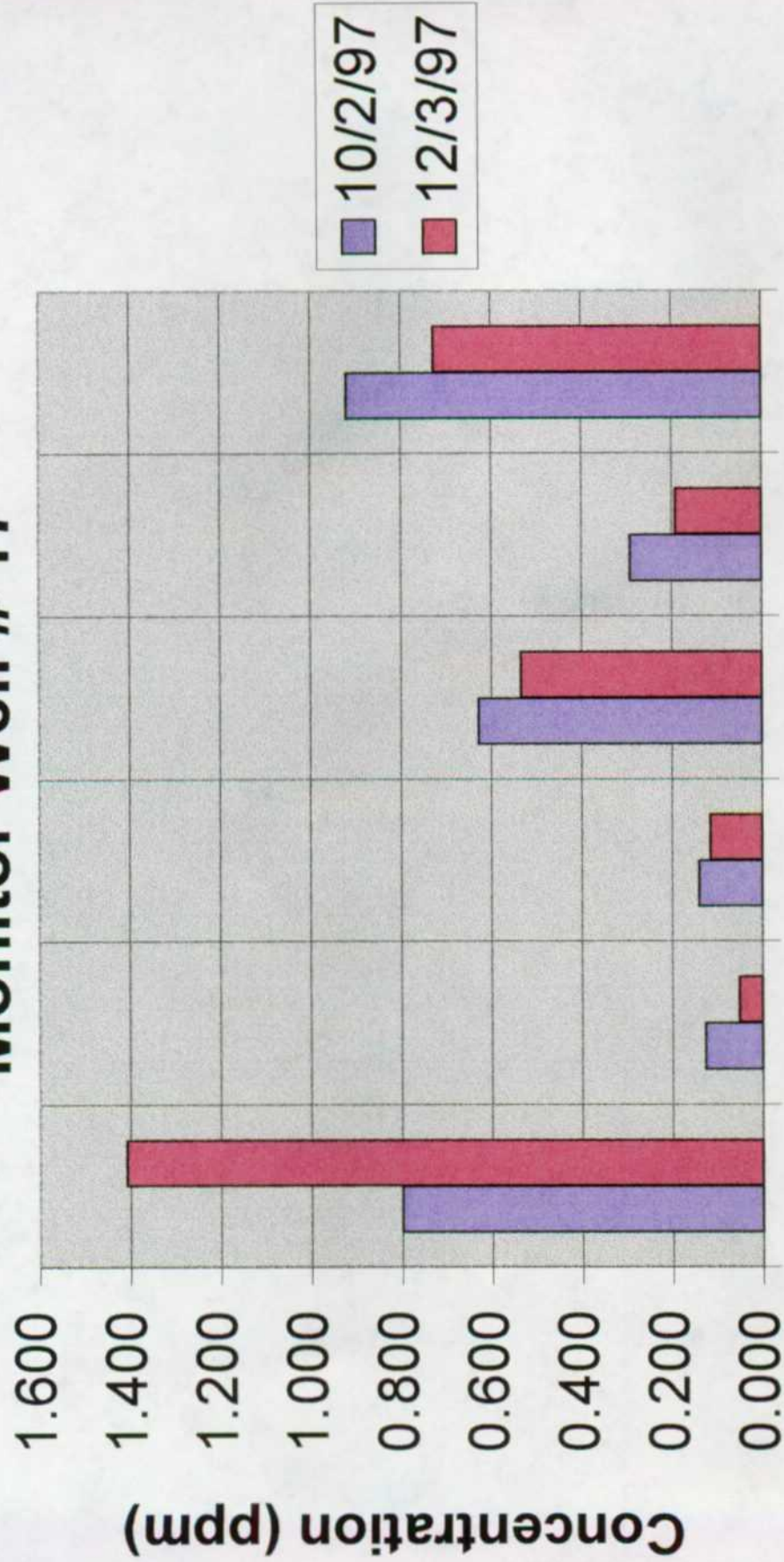
Monitor Well # 10



Monitor Well # 17
Sohio State # 1
Sampling Results

Lab. #	12723	13187
Sample Date	10/2/97	12/3/97
Benzene	0.799	1.409
Toluene	0.128	0.053
Ethylbenzene	0.141	0.116
m,p Xylene	0.628	0.535
o Xylene	0.292	0.192
Total Xylene	0.920	0.727
Total BTEX	2.908	2.305

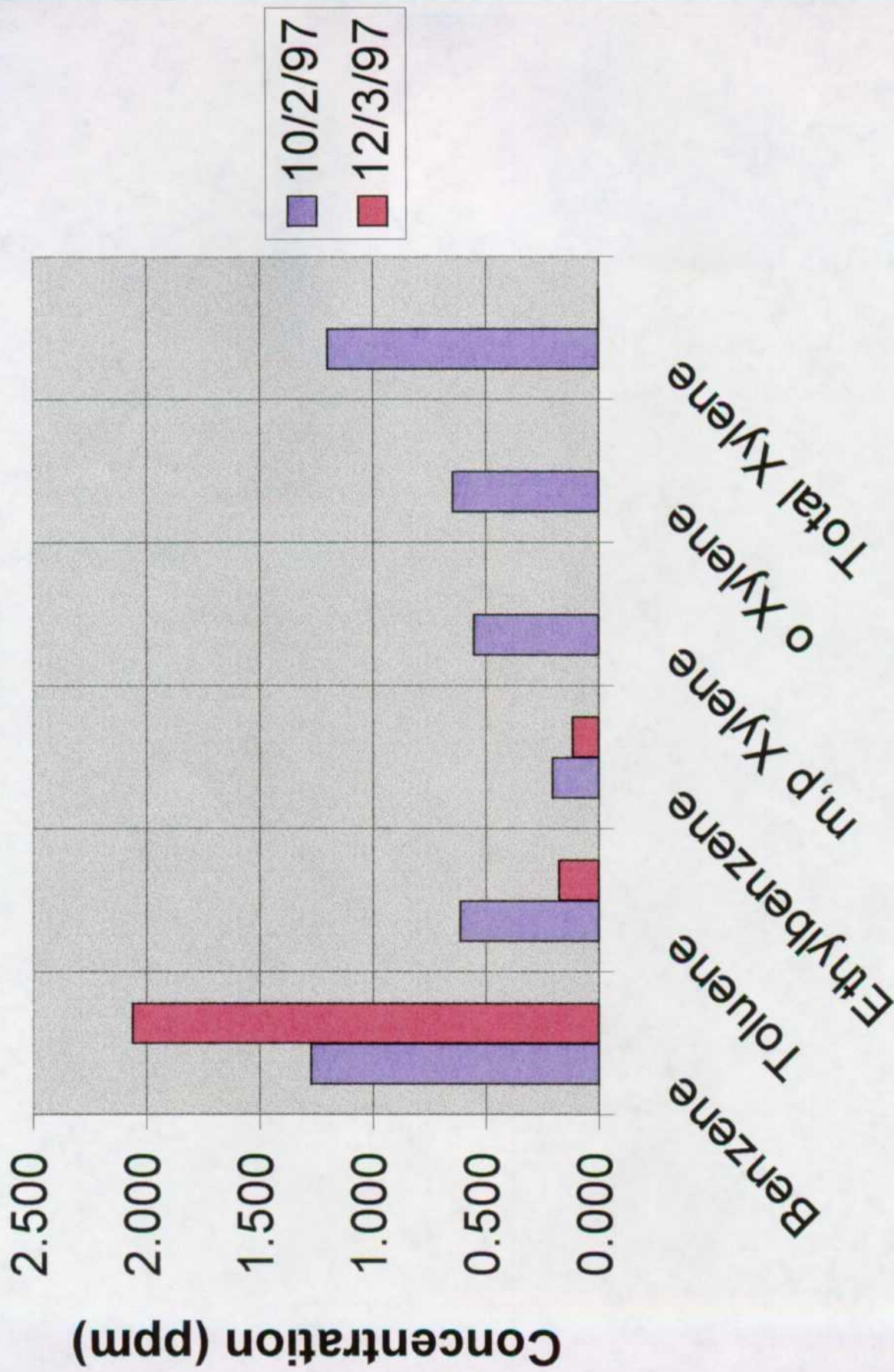
Monitor Well # 17



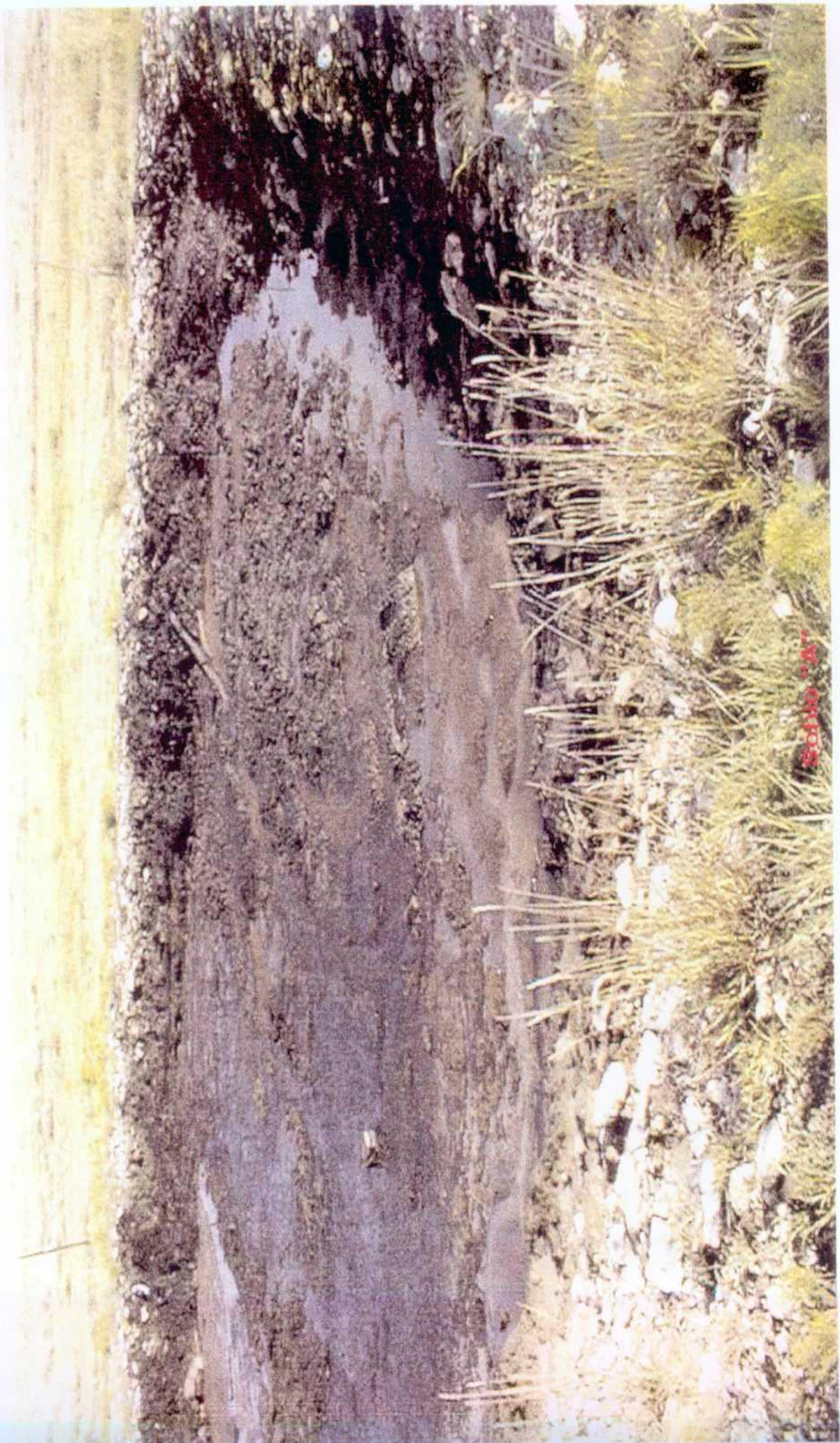
Monitor Well # 18
Sohio State # 1
Sampling Results

Lab. #	12724	13188
Sample Date	10/2/97	12/3/97
Benzene	1.276	2.063
Toluene	0.614	0.178
Ethylbenzene	0.206	0.118
m,p Xylene	0.553	0.001
o Xylene	0.648	0.001
Total Xylene	1.201	0.002
Total BTEX	4.498	2.361

Monitor Well # 18









Sohio State "A"
at Maximum Excavation



SoHo State "A"
at Maximum Excavation

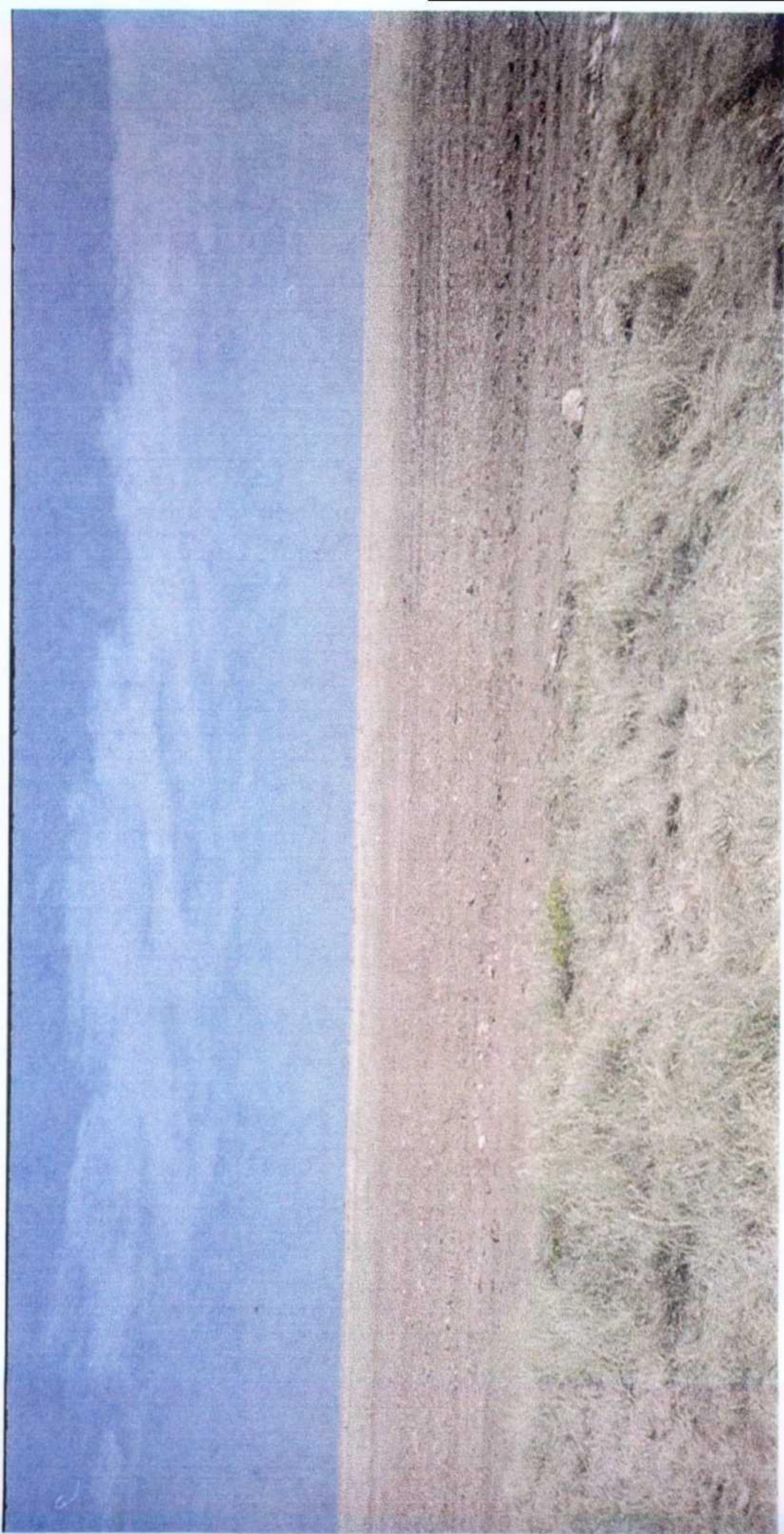


Sohio A
Liner Detail

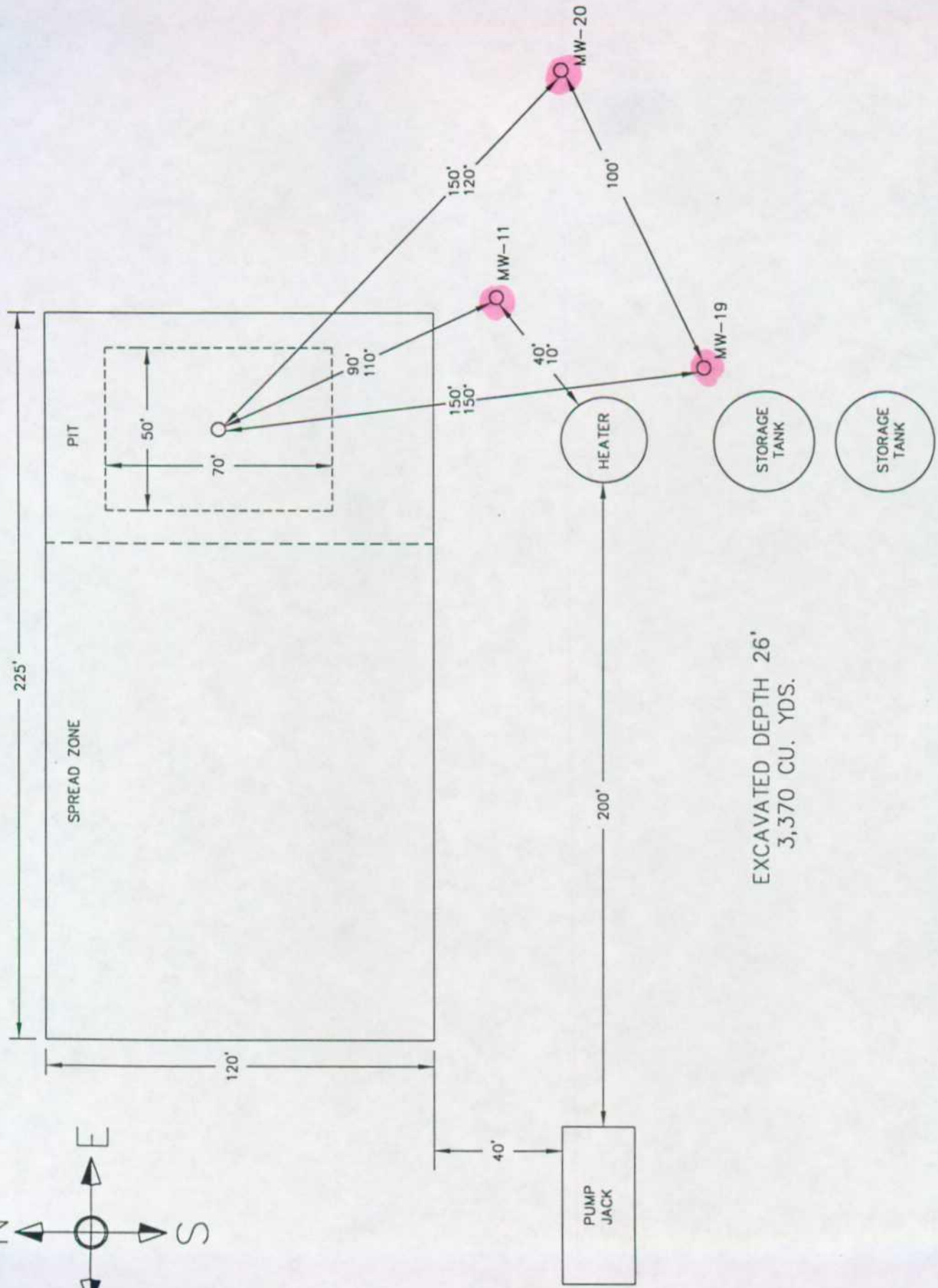
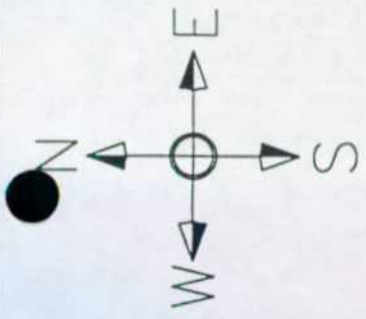


Sohio A
Liner Detail





SOHIO STATE "A"





Sohio State "A"
Water Sampling Results

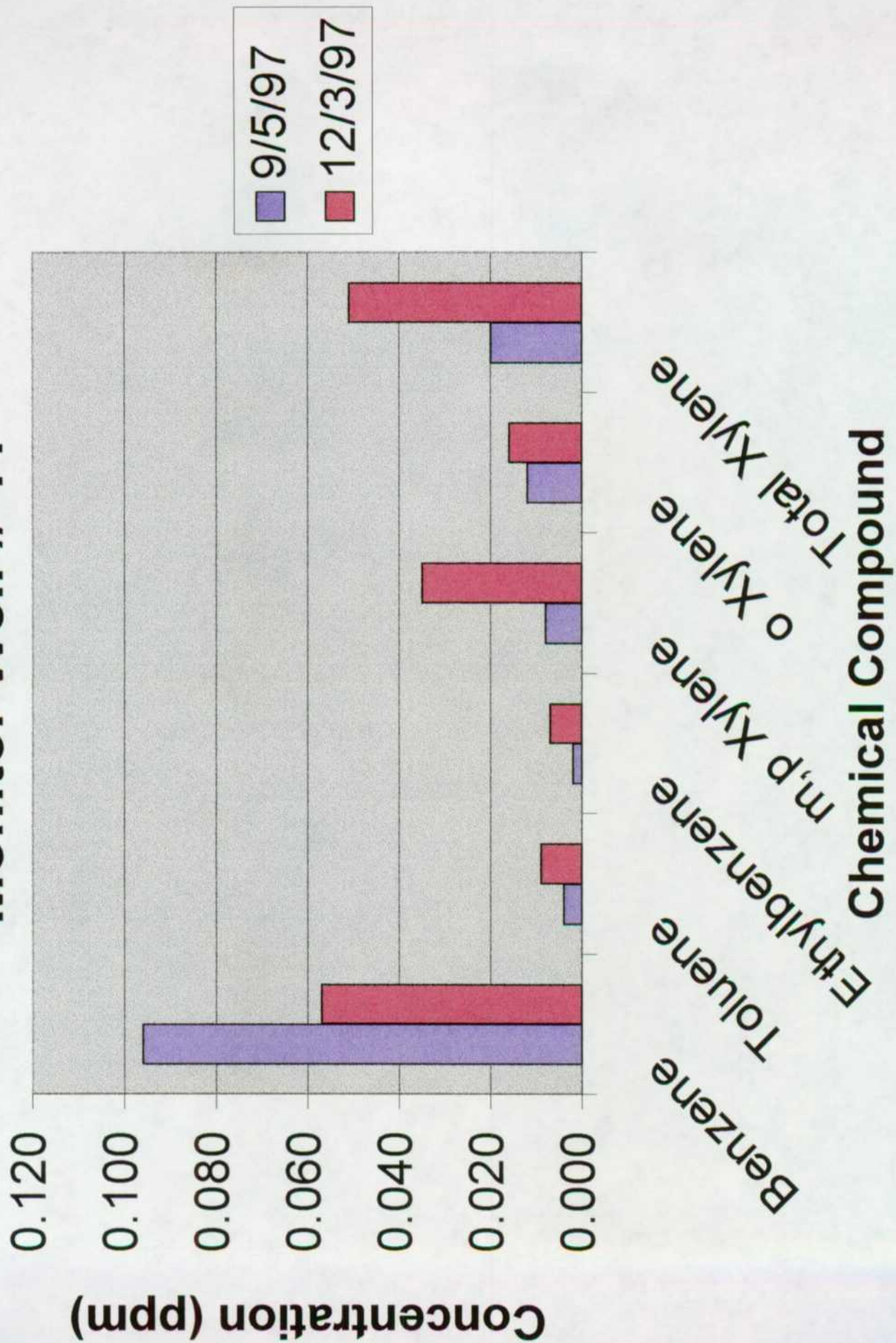
Sample I.D. (Lab)	ELT 12484	ELT 12725	ELT 12726	New Mexico WQCC Allowable Concentrations
Date Sampled	9/5/97	10/2/97	10/2/97	
Date Analyzed	9/9/97	10/5/97	10/5/97	
Source I.D.	M.W. # 11	M.W. # 19	M.W. # 20	

BTEX				
Benzene	0.096	0.003	0.385	0.010
Toluene	0.004	<.001	0.009	0.750
Ethylbenzene	0.002	<.001	0.010	0.750
m,p xylene	0.008	0.002	0.016	
o xylene	0.012	0.001	0.009	
(Ttl. Xylene)	0.020	0.003	0.025	0.620

Monitor Well # 11
Sohio State "A"
Sampling Results

Lab #	12484	13132
Sample Date	9/5/97	12/3/97
Benzene	0.096	0.057
Toluene	0.004	0.009
Ethylbenzene	0.002	0.007
m,p Xylene	0.008	0.035
o Xylene	0.012	0.016
Total Xylene	0.020	0.051
Total BTEX	0.122	0.124

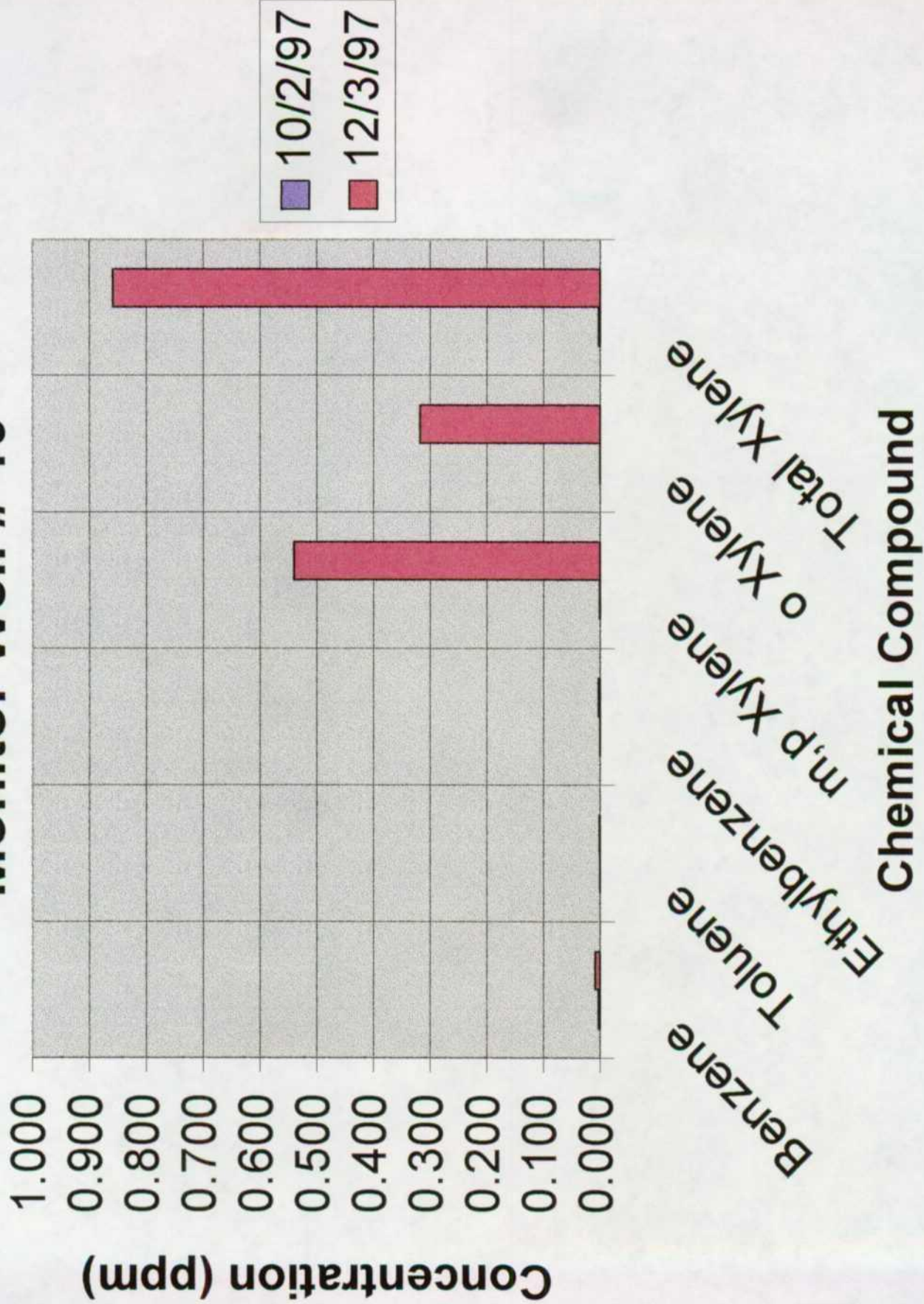
Monitor Well # 11



Monitor Well # 19
Sohio State "A"
Sampling Results

Lab. #	12725	13189
Sample Date	10/2/97	12/3/97
Benzene	0.003	0.009
Toluene	0.001	0.002
Ethylbenzene	0.001	0.003
m,p Xylene	0.002	0.541
o Xylene	0.001	0.318
Total Xylene	0.003	0.859
Total BTEX	0.011	0.873

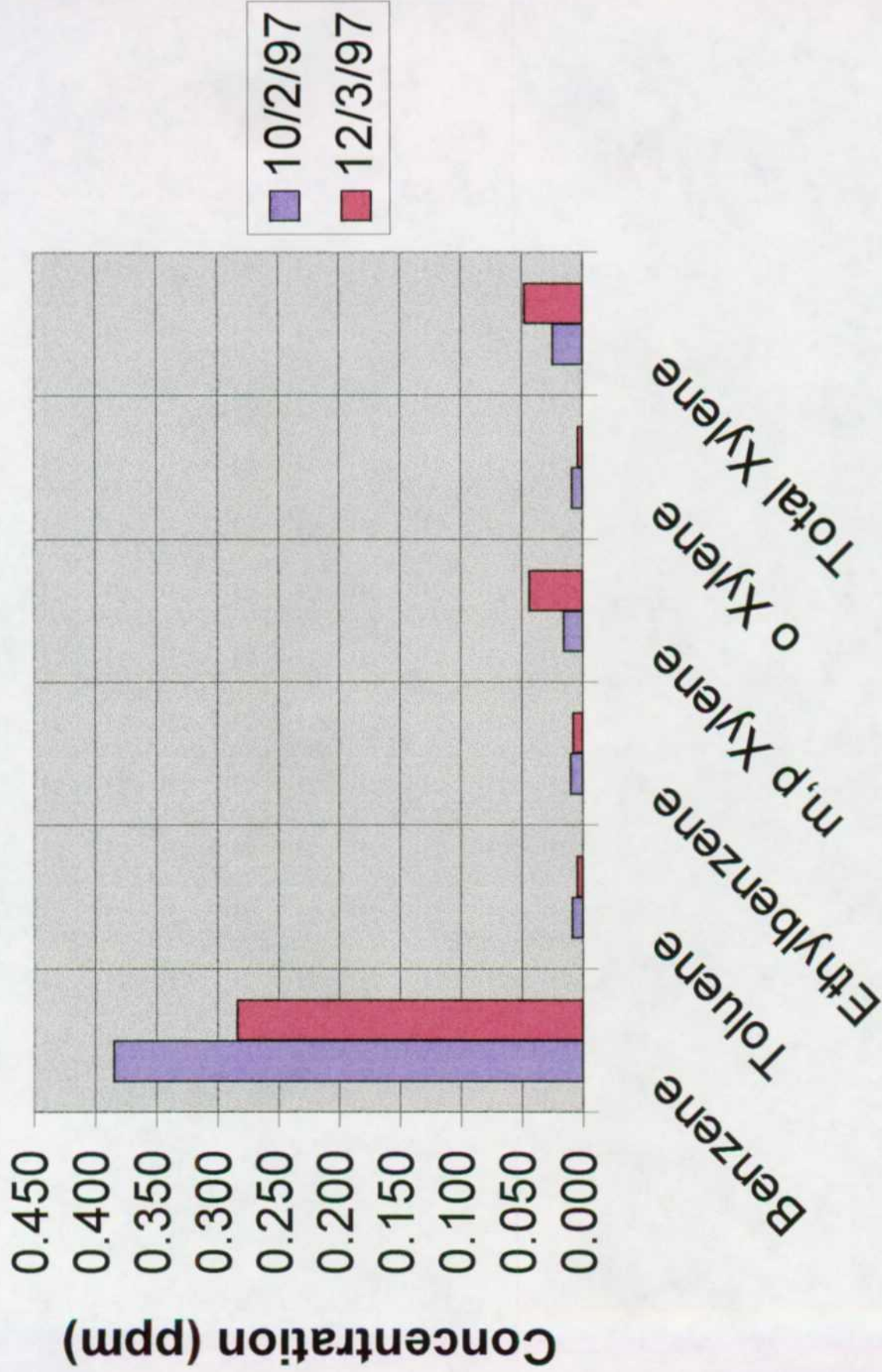
Monitor Well # 19



Monitor Well # 20
Sohio State "A"
Sampling Results

Lab. #	12726	13190
Sample Date	10/2/97	12/3/97
Benzene	0.385	0.284
Toluene	0.009	0.005
Ethylbenzene	0.010	0.008
m,p Xylene	0.016	0.044
o Xylene	0.009	0.004
Total Xylene	0.025	0.048
Total BTEX	0.454	0.345

Monitor Well # 20



ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4358

Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13184	VERA MW-5	0.002	0.001	0.003	0.014	0.005
13185	G.S. STATE MW-21	0.166	0.013	0.059	0.705	0.010
13186	SOHIO STATE "1" MW-10	2.148	0.062	0.173	0.930	0.313
13187	SOHIO STATE "1" MW-17	1.409	0.053	0.116	0.535	0.192
13188	SOHIO STATE "1" MW-10	2.063	0.178	0.118	<0.001	<0.001
13189	SOHIO STATE "A" MW-19	0.009	0.002	0.003	0.541	0.318
13190	SOHIO STATE "A" MW-20	0.284	0.005	0.008	0.044	0.004
13191	SAT "4" MW-9	0.067	0.009	0.006	0.033	0.008
13192	SAT "4" MW-23	0.040	0.012	0.009	0.042	0.019
13193	SAT "4" MW-24	0.017	0.006	0.005	0.025	0.011

% IA	93	93	93	92	95
% EA	101	101	103	102	104
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

12-5-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

TIPPERARY OIL & GAS CORP.
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267-0857
FAX: 505-398-6510

Receiving Date: 11/26/97
Sample Type: WATERS
Project: TATUM PIT CLOSURE
Project Location: NONE GIVEN

Analysis Date: 12/01/97
Sampling Date: 11/21/97
Sample Condition: Intact/loose

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13132	Sohio A MW-11	0.057	0.009	0.007	0.035	0.016
13133	NBF MW-15	2.829	1.176	0.338	1.285	0.411
13134	GS MW-22	0.015	0.005	0.010	0.142	0.028

% IA	102	102	102	100	104
% EA	86	93	92	90	82
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

12-1-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/08/97
Sample Type: WATER
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 09/09/97
Sampling Date: 09/05/97, 09/06/97
Sample Condition: Intact/Ice

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12475	IVA COM MW#1	<.001	<.001	<.001	0.002	0.007
12476	IVA COM MW#2	<.001	<.001	<.001	<.001	<.001
12477	IVA COM SW	3.129	2.551	0.209	1.182	0.094
12478	GS #12	1.834	0.055	0.061	3.085	0.084
12481	BELL #6	0.687	0.013	0.024	0.060	0.006
12482	NBN #7	<.001	<.001	<.001	<.001	<.001
12483	SOHIO 1 #10	2.559	1.148	0.243	1.257	0.081
12484	SOHIO A #11	0.096	0.004	0.002	0.008	0.012
12485	SAT 4 #9	0.092	0.010	0.015	0.082	0.002
12486	NBF #8	0.302	0.208	0.039	0.253	0.161
12487	VERA #5	0.003	0.003	0.005	0.021	0.029
12488	MABLE MW #3	0.010	0.008	0.031	0.139	0.012
12489	MABLE MW #4	0.015	0.002	0.002	0.010	0.002
% IA		111	111	112	111	113
% EA		113	112	114	112	111
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

9-10-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020, 5030


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

411 copies

Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date



Sohio State "A"
Soil Sampling Results

	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/28/97	8/28/97	8/28/97	8/28/97	8/28/97	8/29/97	
Date Tested	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97	9/2/97	
ELT#	12396	12397	12398	12399	12400	12427	
							Allowable
Benzene	<.100	<.100	<.100	<.100	<.100	0.186	10.0
Toluene	<.100	<.100	<.100	<.100	<.100	0.312	
Ethylbenzene	<.100	<.100	<.100	<.100	<.100	0.232	
m,p Xylene	<.100	<.100	<.100	<.100	<.100	0.737	
o Xylene	<.100	<.100	<.100	0.110	0.136	0.580	
Total BTEX	ND	ND	ND	0.110	0.136	2.047	50.0
TPH	<10	36	786	25	<10	6,702	10,000

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<.100	<.100	<.100	0.105	<.100	<10
12422	MABLE FINAL	<.100	0.165	0.129	0.255	<.100	11
12423	VERA FINAL	<.100	0.126	<.100	0.192	<.100	10
12424	BELL FINAL	<.100	<.100	<.100	<.100	<.100	24
12425	NBN FINAL	<.100	<.100	<.100	<.100	<.100	103
12426	NBF FINAL	<.100	<.100	<.100	<.100	<.100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6.702
12428	SOHIO 1 FINAL	<.100	0.373	0.142	0.463	0.342	15.016
12429	G.S. FINAL	<.100	<.100	<.100	<.100	<.100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<.100	<.100	<.100	0.217	0.166	2.963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Receiving Date: 08/29/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 08/29/97
Sampling Date: 08/28/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12380	GULF STATE N	<.100	<.100	<.100	0.121	<.100	140
12381	GULF STATE S	0.668	0.620	0.687	1.458	0.639	1,655
12382	GULF STATE E	<.100	<.100	0.116	0.447	0.268	2,001
12383	GULF STATE W	<.100	0.198	0.332	0.926	0.875	3,268
12384	GULF STATE BOTTOM	0.246	9.990	6.921	46.02	20.95	4,058
12385	SATELLITE 4 N	<.100	<.100	<.100	0.216	0.105	101
12386	SATELLITE 4 E	<.100	<.100	<.100	<.100	<.100	111
12387	SATELLITE 4 S	<.100	<.100	<.100	0.292	0.198	44
12388	SATELLITE 4 W	<.100	<.100	<.100	0.192	<.100	11
12389	SATELLITE 4 B	<.100	0.280	0.533	1.786	1.290	259
12391	SOHIO ST. 1 N	<.100	0.121	<.100	<.100	<.100	<10
12392	SOHIO ST. 1 E	<.100	0.222	0.112	0.703	0.440	36
12393	SOHIO ST. 1 S	<.100	<.100	<.100	0.760	0.334	786
12394	SOHIO ST. 1 W	<.100	<.100	<.100	<.100	<.100	25
12395	SOHIO ST. 1 B	<.100	<.100	<.100	0.102	<.100	<10
12396	SOHIO ST. A N	<.100	<.100	<.100	<.100	<.100	10
12397	SOHIO ST. A E	<.100	<.100	<.100	<.100	<.100	29
12398	SOHIO ST. A S	<.100	<.100	<.100	<.100	<.100	10
12399	SOHIO ST. A W	<.100	<.100	<.100	0.110	<.100	10
12400	SOHIO ST. A B	<.100	<.100	<.100	0.136	<.100	<10
% IA		85	90	87	87	88	105
% EA		110	112	112	110	110	79
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3155			LOG OF BORING Gulf, Sohio St. TH-1 (Page 1 of 2)	
Tipperary Oil and Gas Corporation 639 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 14, 1997 Drill Start : 0800 Drill End : 1015 Boring Location : Gulf, Sohio St., Sec. 8	Site Location : 17 mi. W of Tatum, NM Auger Type : Hollow Stem Logged By : Mori Bates
Depth in feet	GRAPHIC USCS	DESCRIPTION	Samples	
0		Caliche w/SM, clayey, brown, loose, damp		
	CL	Silty Clay, brown, loose, dry		
5	SC	Clayey Sand, brown, loose, damp	1	
	CL	Caliche Clay, tan, firm, dry		
10		Caliche Rock, clayey, tan, hard, dry	2	
15		Caliche Clay, tan, firm, dry	3	
20	CL		4	
25			5	
30			6	

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156			LOG OF BORING Gulf, Sohio St. TH-1 (Page 2 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 14, 1997 Drill Start : 0800 Drill End : 1015 Boring Location : Gulf, Sohio St., Sec. 8 Site Location : 17 mi. W of Tatum, NM Auger Type : Hollow Stem Logged By : Mort Bates		
Depth in Feet	GRAPHIC	USCS	DESCRIPTION	Samples	
30		CL	Caliche Rock, clayey, tan, firm to hard, dry		
35		SP	Clayey Sand, tan, loose to firm, damp	7	
40		CL	Sandy Clay, red, loose, moist	8	
45		SP	Sand, tan, loose, wet	9	
45			TD=45 ft		
50			Boring hole plugged with bentonite & grout		
55					
60					

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 86202-3156			LOG OF BORING Gulf, Sohio St. MW-1 (Page 1 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 29, 1997 Drill Start : 1155 Drill End : 1420 Boring Location : Gulf, Sohio St., Sec. 8, 30 ft, SE from Corner of Center Pt		
			Site Location : 17 mi. W of Tatum, NM Auger Type : Hollow Stem Logged By : Mort Bates		

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	
0			Caliche Rock, clayey, brown, hard, damp	Well: MW-1 Elev.: 8"x12" manhole well cover with 2'x2' concrete base Cap Concrete 2 in. schedule 40, pvc casing Grout
5			Caliche Rock, clayey, tan, firm, damp	
10				
15			Clay, sandy, caliche, silty, tan, firm, damp	
20		SC		
25				
30				

08-05-1997 c:\mydocu\1\mat\sear - twallen bor

Atkins Engineering Associates, Inc.
2904 W. 2nd St., Roswell, NM 86202-3156

Tipperary Oil and Gas Corporation
633 17th St.
Denver, CO 80202

c/o Whole Earth Environmental

LOG OF BORING Gulf, Sohio St. MW-1

(Page 2 of 2)

Date : August 29, 1997

Drill Start : 1156

Drill End : 1420

Boring Location : Gulf, Sohio St., Sec. 8, 30 ft. SE from Corner of Center Pit

Site Location : 17 mi. W of Tatum, NM

Auger Type : Hollow Stem

Logged By : Mark Bates

Depth in feet	GRAPHIC	USCS	DESCRIPTION
30		SC	
35			
40		SC	Silty, Sandy, Clay, tan, loose, damp
45			
50		CL	Sandy Clay, tan, soft, moist
55			
60		CL	Sandy Clay, tan, soft, saturated Water Level = 48 ft.
65			
70	TD=58 ft.		

Well: MW-1
Elev.:

The diagram shows a vertical well casing. At the top, it is labeled 'Groul' (likely Grout). Below that is '2 in. schedule 40, pvc casing'. Further down is a 'Bentonite Seal'. At the bottom is a 'Sand Pack' and a '020 slot screen, 2 in. ID'. A water level is indicated by a horizontal line at 48 ft.

Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING G.S. State 4" Recovery Well

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

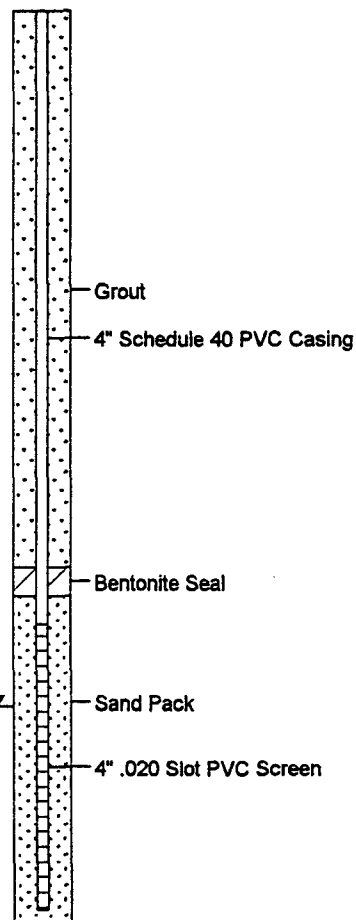
Date Completed : September 26, 1997 Site Location : 14 miles W. of Tatum
Drill Start : 8:00 a.m. Auger Type : Hollow Stem
Drill End : 1:00 p.m. Logged By : Mort Bates
Boring Location : G.S. State, Sec. 8; Center of Pit

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0			Caliche Rock w/Silty Clay, Brown, Stiff, Damp, Back fill
5			Caliche Rock w/Silty Clay, Gray, Stiff, Damp
10			
15			Silty Clay w/some Caliche, Gray, Stiff, Dry
20			
25		CL	
30			
35			Sandy Clay, Tan, Stiff, Moist
40		CL	
45			
50			Silty Sandy Clay, Tan, Loose, Wet to Saturated WL = 48.76 ft.
55		CL	
60			
65			TD = 64 ft.
70			Developed well for 1 1/2 hours. Well cleared up and pumped clear for 1/2 hour.
75			
80			
85			
90			

Well: Recovery Well

Elev.:



Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING G.S.State MW #2

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

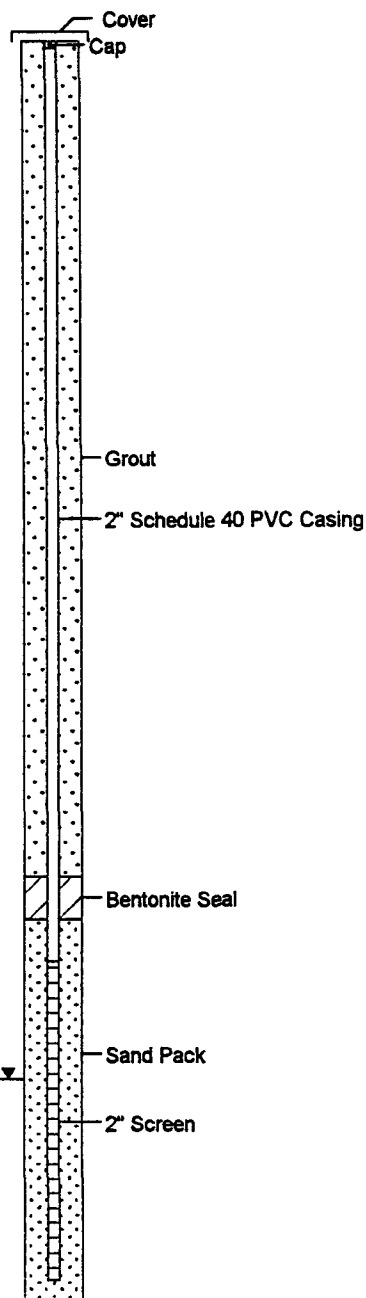
Date Completed : September 26, 1997 Site Location : 14 miles W. of Tatum
Drill Start : 1:10 p.m. Auger Type : Hollow Stem
Drill End : 4:00 p.m. Logged By : Mort Bates
Boring Location : G.S. State, Sec. 8; 150 ft. S. SE. of 4" well

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0			Caliche Rock w/Silty Clay, Brown, Stiff, Damp
5			
10			
15			
20			
25		CL	Sandy Clay w/Caliche, Tan, Stiff, Damp
30			
35			
40			
45			
50		SM	Silty Sand, Tan, Loose, Dry
55			
60			
		CL	Sandy Clay, Tan, Loose, Wet WL = 48 ft.
			TD = 59 ft. Bailed well for 45 mins.

Well: MW #2

Elev.:



Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING G.S. State MW #3

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

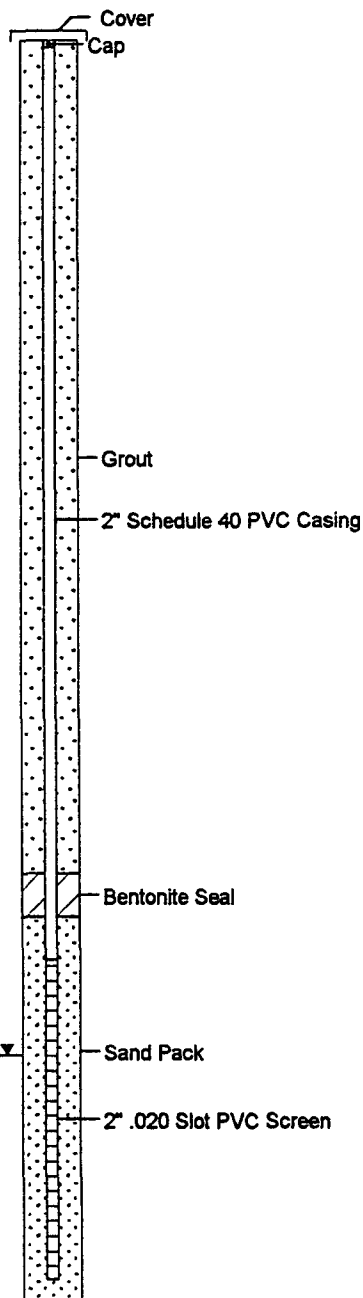
Date Completed : September 29, 1997 Site Location : 14 miles W. of Tatum
Drill Start : 8:20 a.m. Auger Type : Hollow Stem
Drill End : 10:00 a.m. Logged By : Mort Bates
Boring Location : G.S. State, Sec. 8; 150 ft. E. SE. of 4" well Center of Pit

Job #97260

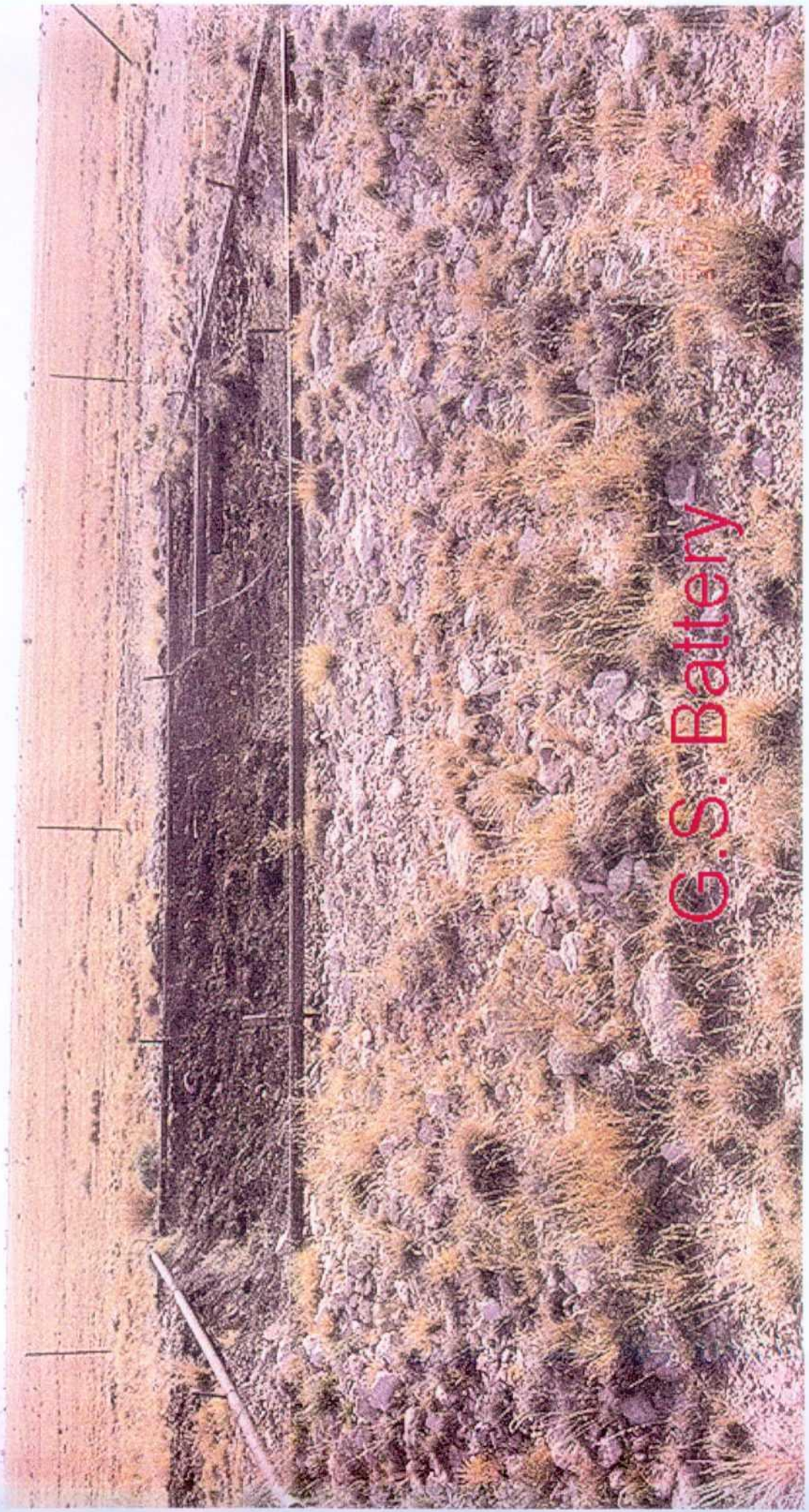
Depth in feet	GRAPHIC	USCS	DESCRIPTION
0			Silty Clay w/Caliche Rock, Brown, Stiff, Damp
5			Silty Clay w/Caliche, Tan, Stiff, Damp to Dry
10			
15			
20			
25			
30			Silty Sandy Clay w/Caliche, Reddish-Tan, Stiff, Dry
35			
40			Silty Sandy Clay, Tan, Stiff, Dry
45			Silty Sandy Clay, Tan, Stiff, Moist
50			Silty Sandy Clay, Tan, Wet to Saturated WL = 47.5 ft.
55			
60			TD = 59 ft. Bailed well for 45 mins.

Well: MW #3

Elev.:



G.S. Battery

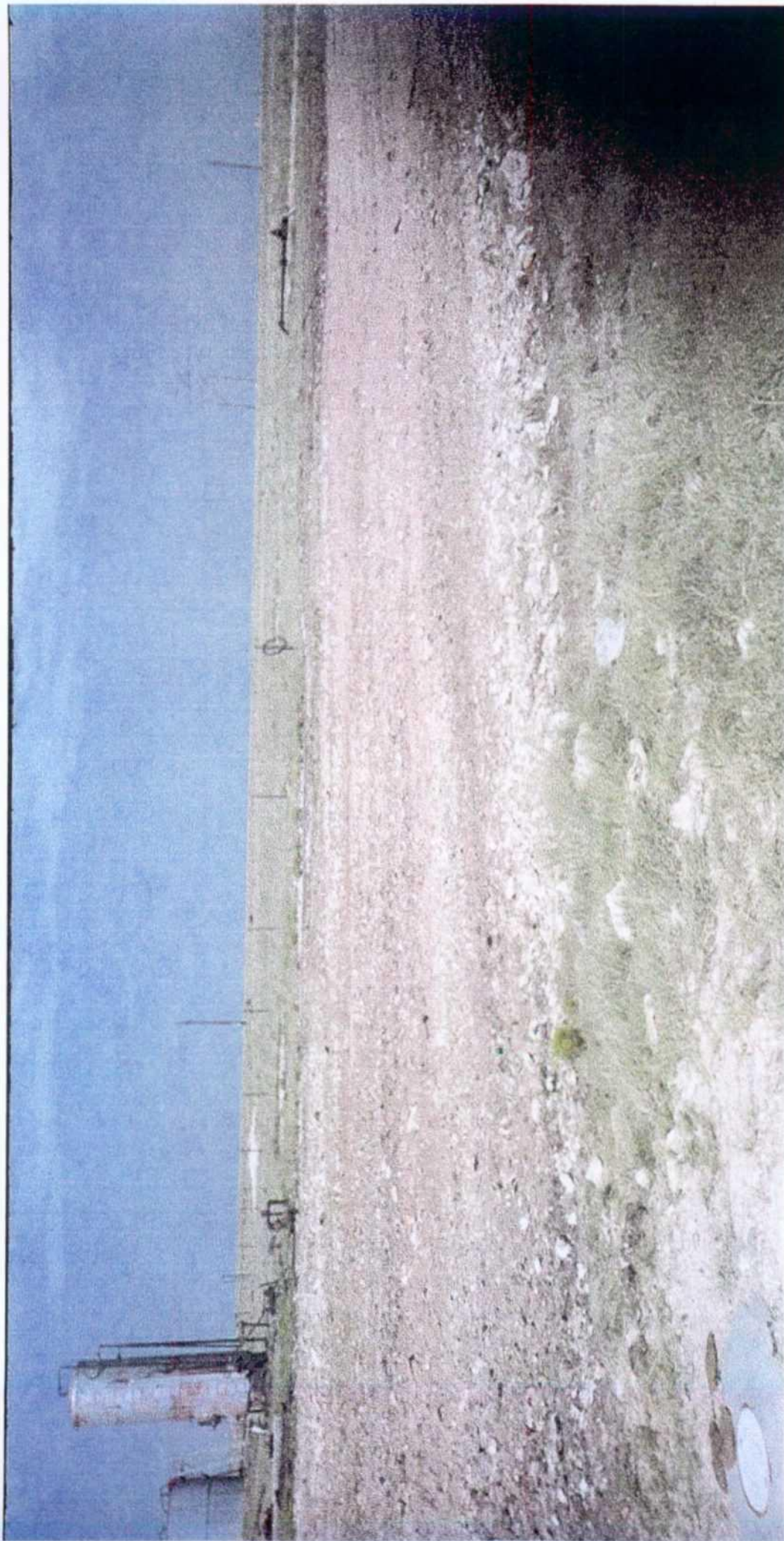




G.S. State # 1
at Maximum Excavation

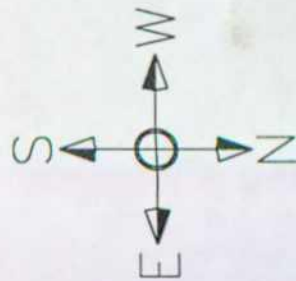
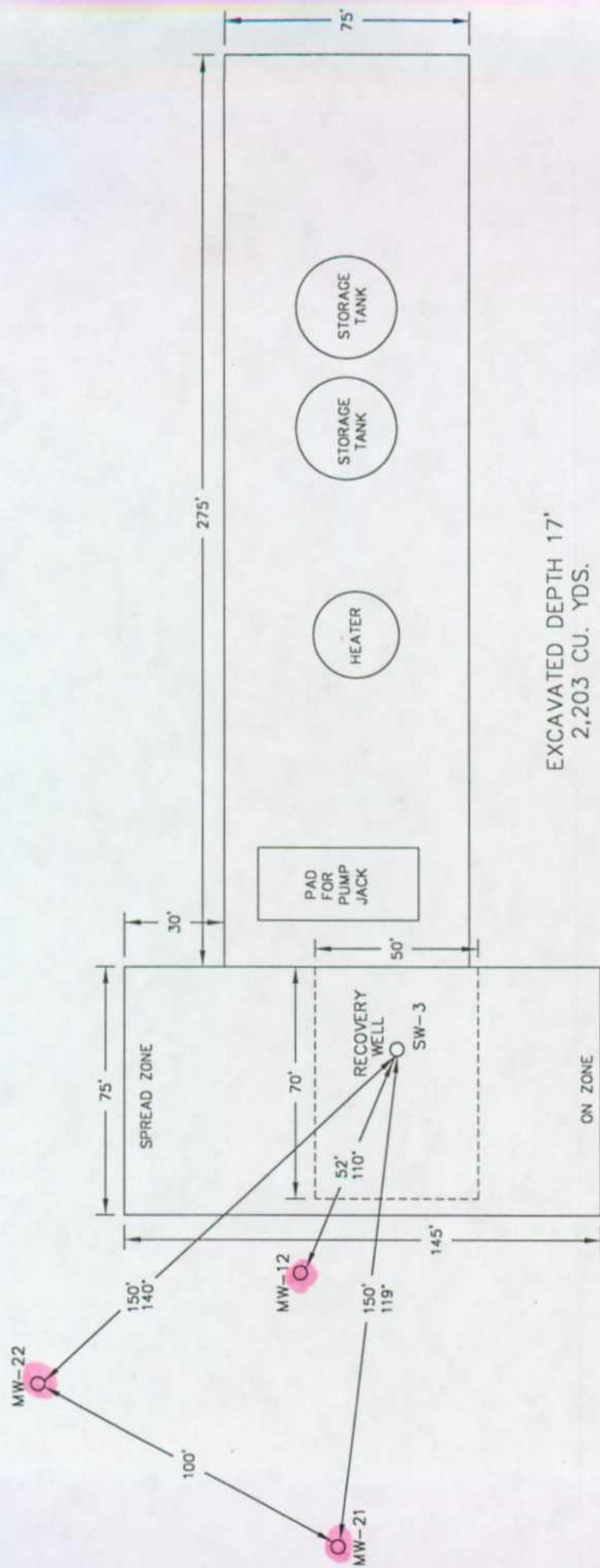


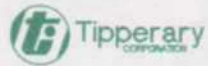
G.S. State # 1
at Maximum Excavation





G.S. STATE





G.S. State # 1
Water Sampling Results

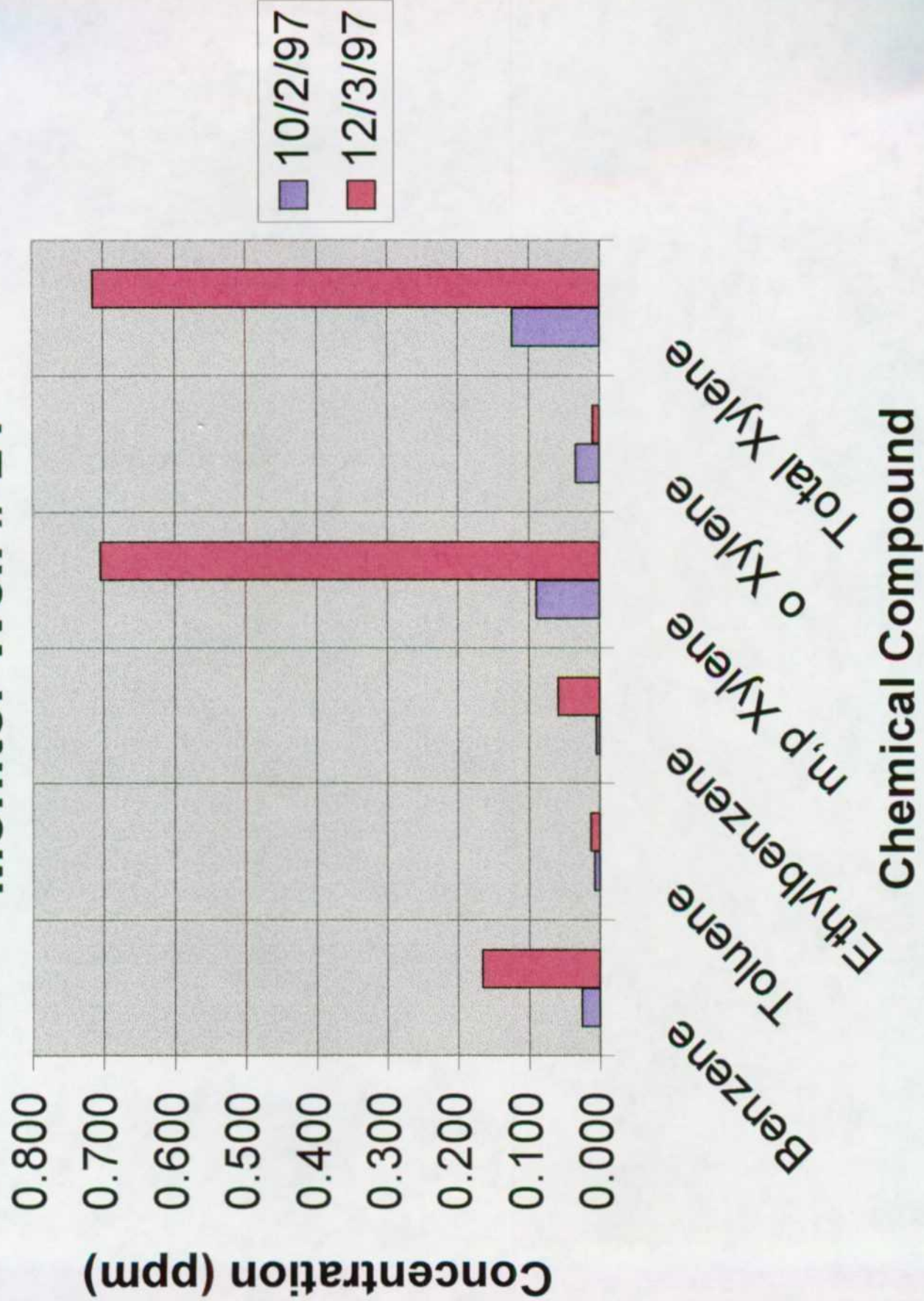
Sample I.D. (Lab)	ELT 12478	ELT 12721	ELT 12722	ELT 12733	New Mexico WQCC Allowable Concentrations
Date Sampled	9/6/97	10/2/97	10/2/97	10/2/97	
Date Analyzed	10/1/97	10/5/97	10/5/97	10/5/97	
Source I.D.	M.W. # 12	M.W. # 21	M.W. # 22	SW # 3	

BTEX					
Benzene	0.092	0.026	0.138	<.001	0.010
Toluene	0.010	0.008	0.005	<.001	0.750
Ethylbenzene	0.015	0.005	0.001	<.001	0.750
m,p xylene	0.082	0.090	0.002	0.002	
o xylene	0.002	0.034	0.002	0.001	
(Ttl. Xylene)	0.084	0.124	0.004	0.003	0.620

Monitor Well # 21
G.S. State # 1
Sampling Results

Lab. #	12721	13185
Sample Date	10/2/97	12/3/97
Benzene	0.026	0.166
Toluene	0.008	0.013
Ethylbenzene	0.005	0.059
m,p Xylene	0.090	0.705
o Xylene	0.034	0.01
Total Xylene	0.124	0.715
Total BTEX	0.287	0.953

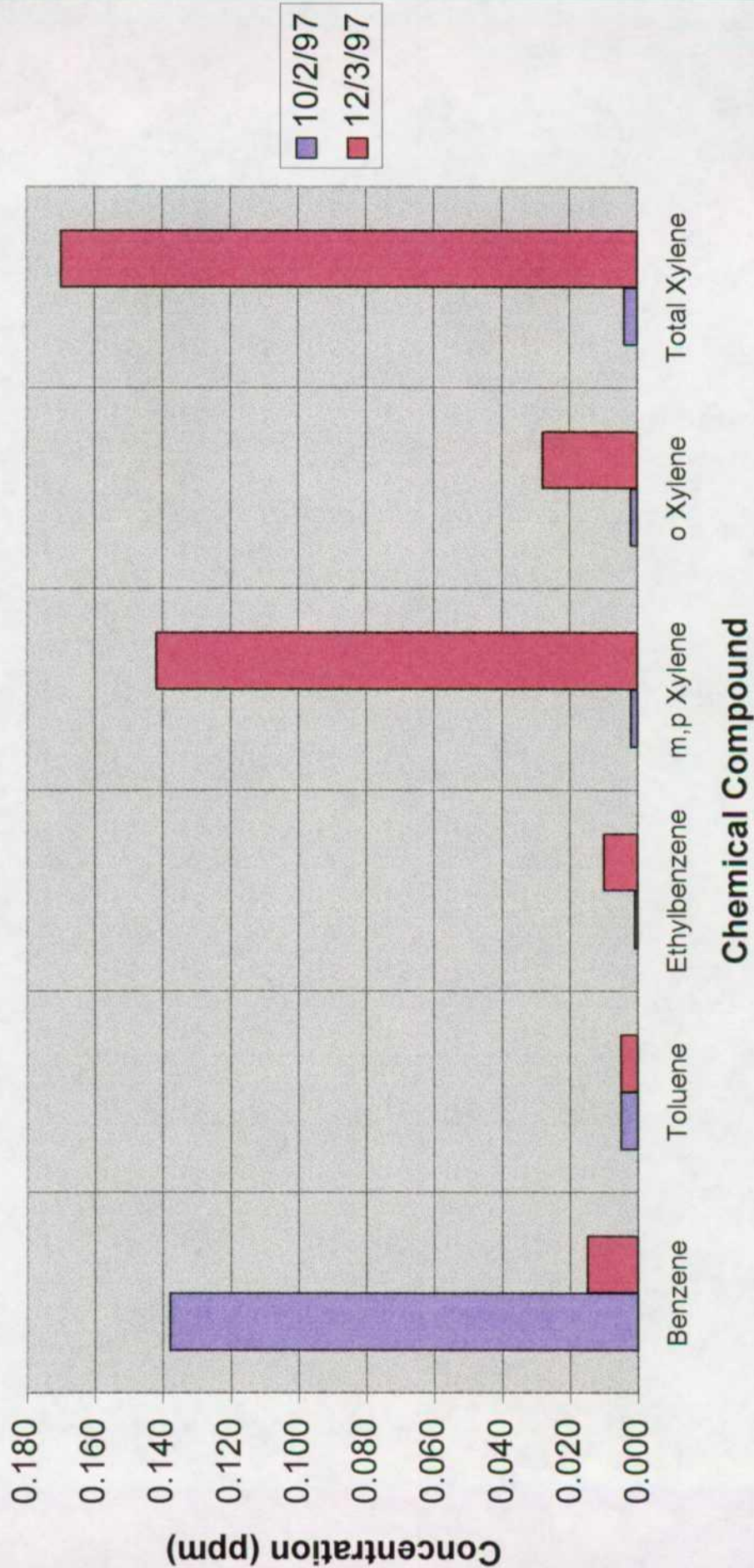
Monitor Well # 21



Monitor Well # 22
G.S. State # 1
Sampling Results

Lab. #	12722	13134
Sample Date	10/2/97	12/3/97
Benzene	0.138	0.015
Toluene	0.005	0.005
Ethylbenzene	0.001	0.010
m,p Xylene	0.002	0.142
o Xylene	0.002	0.028
Total Xylene	0.004	0.170
Total BTEX	0.152	0.200

Monitor Well # 22



ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4358

Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13184	VERA MW-5	0.002	0.001	0.003	0.014	0.005
13185	G.S. STATE MW-21	0.166	0.013	0.059	0.705	0.010
13186	SOHIO STATE "1" MW-10	2.148	0.052	0.173	0.930	0.313
13187	SOHIO STATE "1" MW-17	1.409	0.053	0.116	0.535	0.192
13188	SOHIO STATE "1" MW-10	2.063	0.178	0.118	<0.001	<0.001
13189	SOHIO STATE "A" MW-19	0.009	0.002	0.003	0.541	0.318
13190	SOHIO STATE "A" MW-20	0.284	0.005	0.008	0.044	0.004
13191	SAT "4" MW-9	0.067	0.009	0.006	0.033	0.008
13192	SAT "4" MW-23	0.040	0.012	0.009	0.042	0.019
13193	SAT "4" MW-24	0.017	0.006	0.005	0.025	0.011
% IA		93	93	93	92	95
% EA		101	101	103	102	104
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

12-5-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

TIPPERARY OIL & GAS CORP.
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267-0857
FAX: 505-398-6510

Receiving Date: 11/26/97
Sample Type: WATERS
Project: TATUM PIT CLOSURE
Project Location: NONE GIVEN

Analysis Date: 12/01/97
Sampling Date: 11/21/97
Sample Condition: Intact/loose

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13132	Sohio A MW-11	0.057	0.009	0.007	0.035	0.016
13133	NBF MW-15	2.829	1.176	0.338	1.285	0.411
13134	GS MW-22	0.015	0.005	0.010	0.142	0.028

% IA	102	102	102	100	104
% EA	86	93	92	90	92
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

12-1-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/08/97
Sample Type: WATER
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 09/09/97
Sampling Date: 09/05/97, 09/06/97
Sample Condition: Intact/Ice

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12475	IVA COM MW#1	<.001	<.001	<.001	0.002	0.007
12476	IVA COM MW#2	<.001	<.001	<.001	<.001	<.001
12477	IVA COM SW	3.129	2.551	0.209	1.182	0.094
12478	GS #12	1.834	0.055	0.061	3.085	0.084
12481	BELL #6	0.687	0.013	0.024	0.060	0.006
12482	NBN #7	<.001	<.001	<.001	<.001	<.001
12483	SOHIO 1 #10	2.559	1.148	0.243	1.257	0.081
12484	SOHIO A #11	0.096	0.004	0.002	0.008	0.012
12485	SAT 4 #9	0.092	0.010	0.015	0.082	0.002
12486	NBF #8	0.302	0.208	0.039	0.253	0.161
12487	VERA #5	0.003	0.003	0.005	0.021	0.029
12488	MABLE MW #3	0.010	0.008	0.031	0.139	0.012
12489	MABLE MW #4	0.015	0.002	0.002	0.010	0.002
% IA		111	111	112	111	113
% EA		113	112	114	112	111
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

9-10-97
Date



GS State # 1
Soil Sampling Results

	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/28/97	8/28/97	8/28/97	8/28/97	8/29/97	8/29/97	
Date Tested	8/29/97	8/29/97	8/29/97	8/29/97	9/2/97	9/2/97	
ELT#	12380	12382	12381	12383	12431	12429	
							Allowable
Benzene	<.100	<.100	0.668	<.100	<.100	<.100	10.0
Toluene	<.100	<.100	0.620	0.198	<.100	<.100	
Ethylbenzene	<.100	0.118	0.687	0.332	<.100	<.100	
m,p Xylene	0.121	0.447	1.458	0.926	0.217	<.100	
o Xylene	<.100	0.268	0.639	0.875	0.166	<.100	
Total BTEX	0.121	0.833	4.072	2.331	0.383	ND	50.0
TPH	140	2,001	1,655	3,268	2,963	15	10,000

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

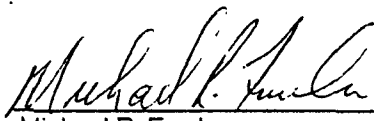
Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020, 5030


Michael R. Fowler

10-27-97
Date

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WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

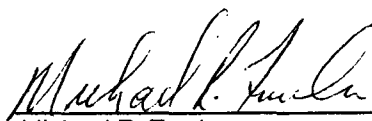
Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM.N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<.100	<.100	<.100	0.105	<.100	<10
12422	MABLE FINAL	<.100	0.165	0.129	0.255	<.100	11
12423	VERA FINAL	<.100	0.126	<.100	0.192	<.100	10
12424	BELL FINAL	<.100	<.100	<.100	<.100	<.100	24
12425	NBN FINAL	<.100	<.100	<.100	<.100	<.100	103
12426	NBF FINAL	<.100	<.100	<.100	<.100	<.100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6.702
12428	SOHIO 1 FINAL	<.100	0.373	0.142	0.463	0.342	15.016
12429	G.S. FINAL	<.100	<.100	<.100	<.100	<.100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<.100	<.100	<.100	0.217	0.166	2.963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SW 846-8020, 5030, 8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Receiving Date: 08/29/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 08/29/97
Sampling Date: 08/28/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12380	GULF STATE N	<.100	<.100	<.100	0.121	<.100	140
12381	GULF STATE S	0.668	0.620	0.687	1.458	0.639	1,655
12382	GULF STATE E	<.100	<.100	0.116	0.447	0.268	2.001
12383	GULF STATE W	<.100	0.198	0.332	0.926	0.875	3,268
12384	GULF STATE BOTTOM	0.246	9.990	6.921	46.02	20.95	4,058
12385	SATELLITE 4 N	<.100	<.100	<.100	0.216	0.105	101
12386	SATELLITE 4 E	<.100	<.100	<.100	<.100	<.100	111
12387	SATELLITE 4 S	<.100	<.100	<.100	0.292	0.198	44
12388	SATELLITE 4 W	<.100	<.100	<.100	0.192	<.100	11
12389	SATELLITE 4 B	<.100	0.280	0.533	1.786	1.290	259
12391	SOHIO ST. 1 N	<.100	0.121	<.100	<.100	<.100	<10
12392	SOHIO ST. 1 E	<.100	0.222	0.112	0.703	0.440	36
12393	SOHIO ST. 1 S	<.100	<.100	<.100	0.760	0.334	786
12394	SOHIO ST. 1 W	<.100	<.100	<.100	<.100	<.100	25
12395	SOHIO ST. 1 B	<.100	<.100	<.100	0.102	<.100	<10
12396	SOHIO ST. A N	<.100	<.100	<.100	<.100	<.100	10
12397	SOHIO ST. A E	<.100	<.100	<.100	<.100	<.100	29
12398	SOHIO ST. A S	<.100	<.100	<.100	<.100	<.100	10
12399	SOHIO ST. A W	<.100	<.100	<.100	0.110	<.100	10
12400	SOHIO ST. A B	<.100	<.100	<.100	0.136	<.100	<10
% IA		85	90	87	87	88	105
% EA		110	112	112	110	110	79
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date

Satellite # 4

10/20/95





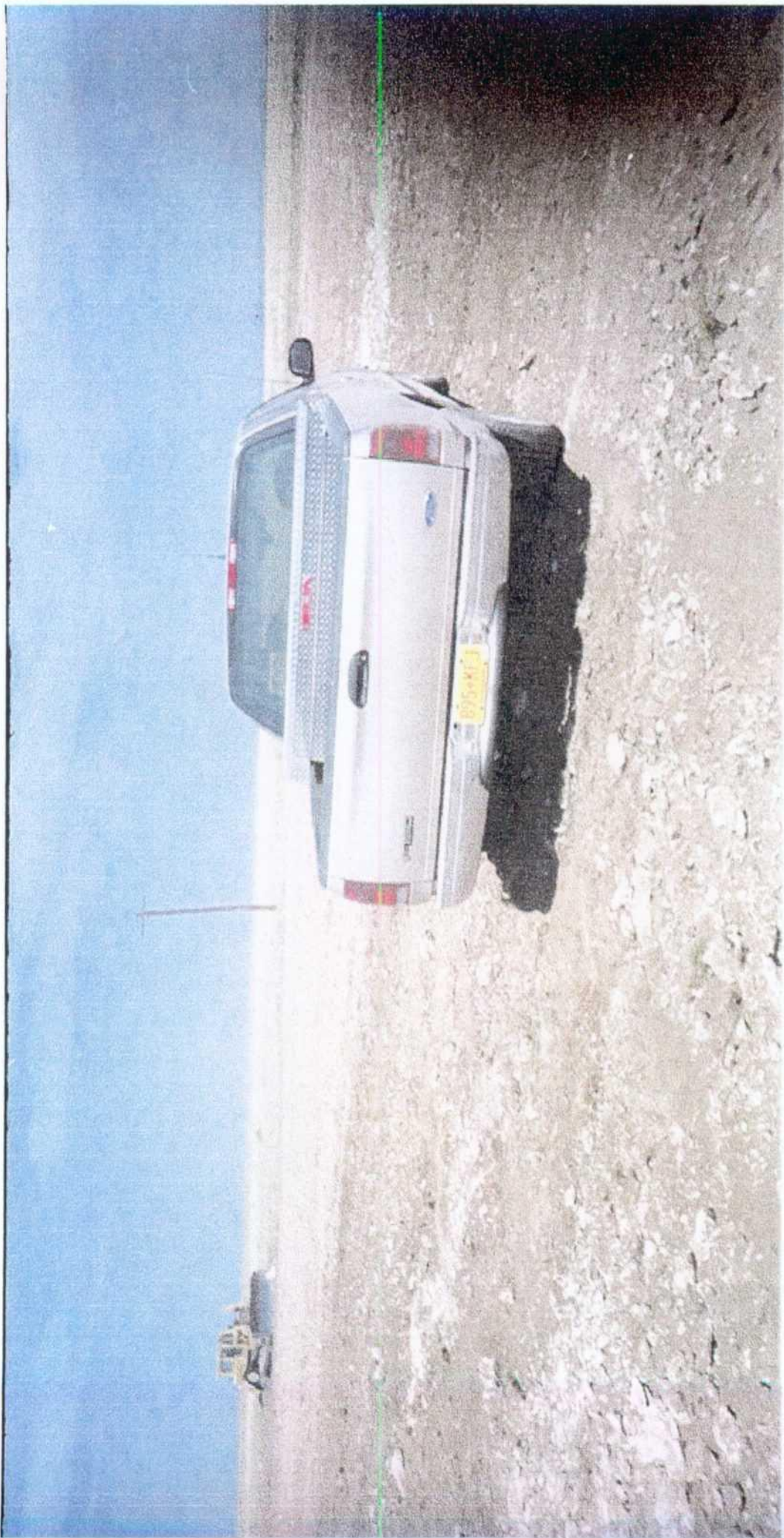
Satellite # 4 at Max.
Excavation Depth

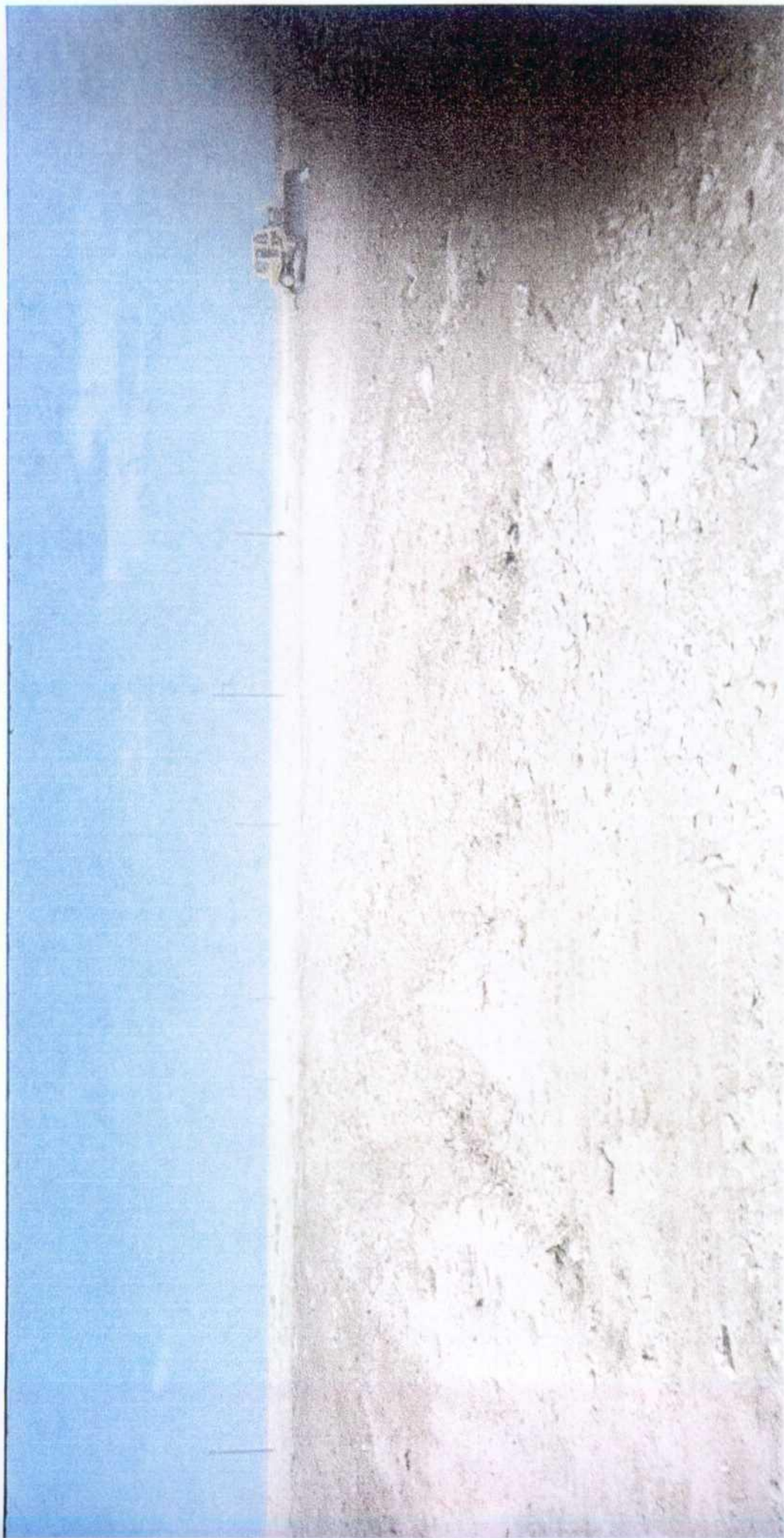


Satellite #4 at Max.
Excavation Depth



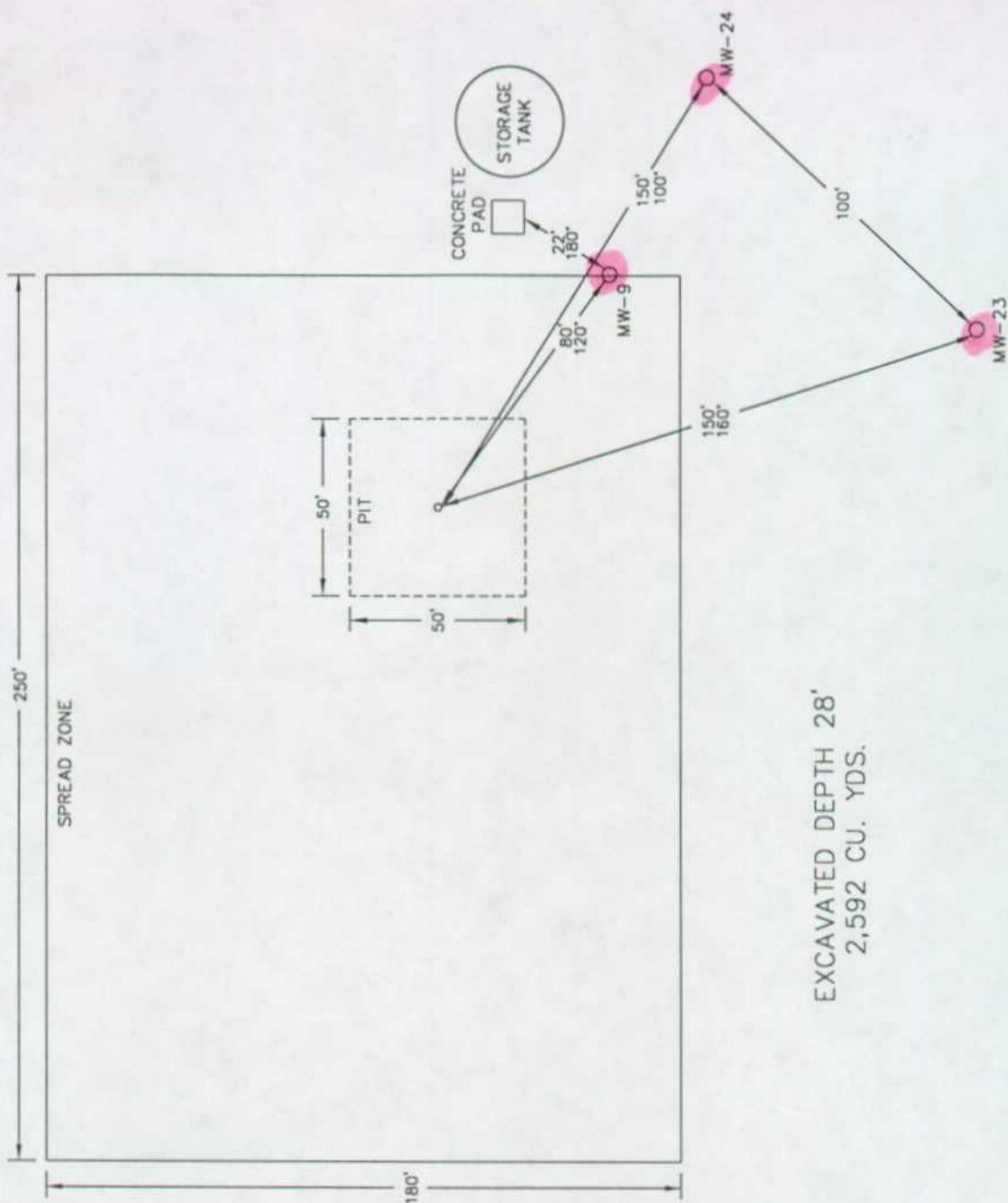






SAT. 4

LEASE ROAD

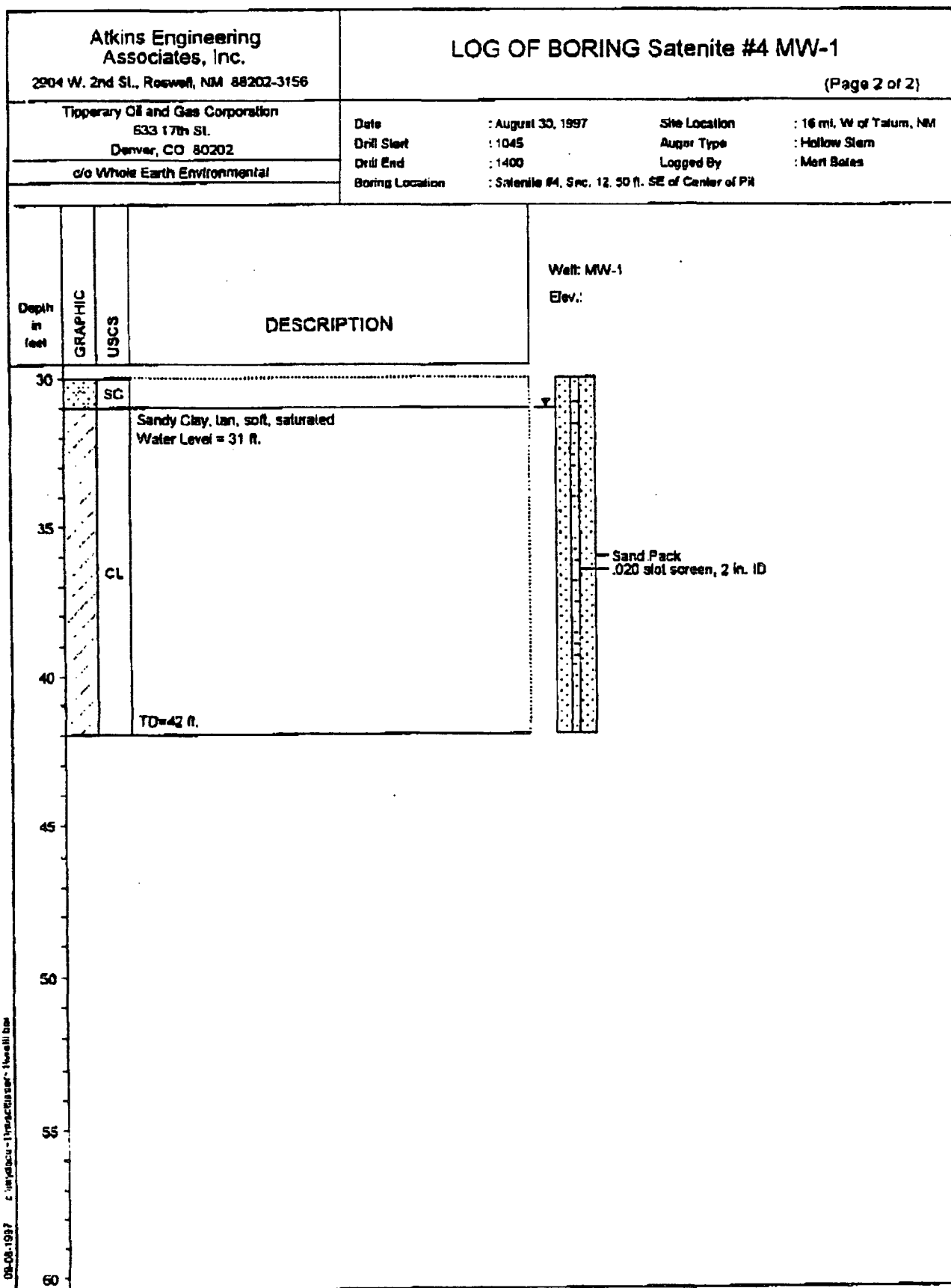


EXCAVATED DEPTH 28'
2,592 CU. YDS.

Atkins Engineering Associates, Inc. 2904 W. 2nd St., Roswell, NM 88202-3156			LOG OF BORING Satelite #4 MW-1 (Page 1 of 2)		
Tipperary Oil and Gas Corporation 633 17th St. Denver, CO 80202 c/o Whole Earth Environmental			Date : August 30, 1997 Site Location : 15 mi. W of Tatum, NM Drill Start : 1045 Auger Type : Hollow Stem Drill End : 1400 Logged By : Matt Bates Boring Location : Satelite #4, Sec. 12, 50 N. SE of Center of Pil		

Depth in feet	GRAPHIC	USCS	DESCRIPTION	
0			Caliche Rock, clayey, brown, hard, dry	Well: MW-1 Elev.: 8"x12" monitor well cover with 2x2 concrete base Cap Concrete Grout 2 in. schedule 40, pvc casing Bentonite Seal Sand Pack .020 slot screen, 2 in. ID
5				
10			Caliche Rock, tan, hard, dry	
15		CL	Caliche Clay, tan, stiff, dry	
20		CL	Caliche Clay, sandy, tan, stiff, damp	
25			Clayey Sand, tan, stiff, damp	
30		SC		

09-08-1987 c:\mveloc\img\logsat-1 well bor



Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING Satellite #4, MW #2

(Page 1 of 1)

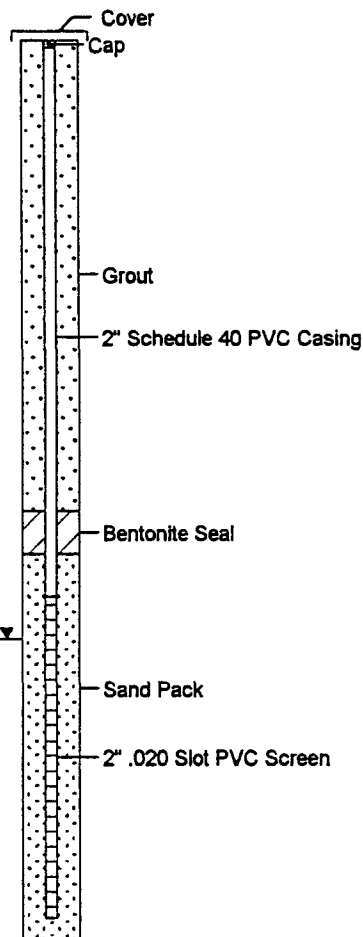
Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

Date Completed : 10-1-97 / 10-2-97 Site Location : 13 miles W. of Tatum
Drill Start : 4:00 p.m. / 7:00 a.m. Auger Type : Hollow Stem
Drill End : 5:00 p.m. / 7:40 a.m. Logged By : Mort Bates
Boring Location : Satellite #4, Sec. 12; 150 ft. E. SE. of Center of Pit

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0			Caliche Rock w/Silty Clay, Brown, Hard, Damp
5			Caliche w/Silty Clay, Tan, Stiff, Dry
10			Clayey Sand w/Caliche, Tan, Stiff, Damp
15			
20		SC	
25			WL = 28 ft.
30			Sandy Clay, Tan, Loose, Wet to Saturated
35			
40		CL	
45			TD = 42 ft.
50			
55			Bailed and Developed well
60			

Well: MW #2
Elev.:



Atkins Engineering Associates, Inc.
P.O. Box 3156
Roswell, New Mexico 88202

LOG OF BORING Satellite #4, MW #3

(Page 1 of 1)

Tipperary Corp. (Whole Earth Environmental)
633 17th Street
Denver, CO 80202

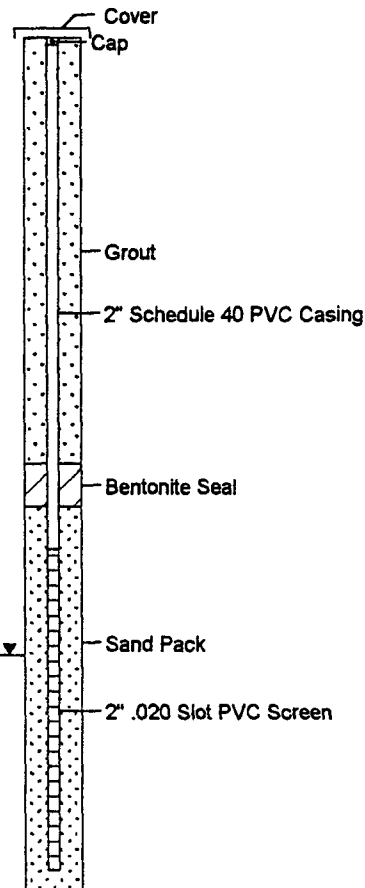
Date Completed : 10-2-97
Drill Start : 7:45 a.m.
Drill End : 9:30 a.m.
Boring Location : Satellite #4, Sec. 12; 150 ft. S. SE. of Center of Pit

Site Location : 13 miles W. of Tatum
Auger Type : Hollow Stem
Logged By : Mort Bates

Job #97260

Depth in feet	GRAPHIC	USCS	DESCRIPTION
0			Caliche Rock w/Clay, Brown, Hard, Dry
5			Caliche Rock w/Clay, Tan, Stiff, Dry
10			
15		CL	Clay w/Caliche, Tan, Stiff, Damp
20		SC	Clayey Sand w/Caliche, Tan, Stiff, Moist
25		SC	Clayey Sand w/Gravel, Tan, Stiff, Moist
30		CL	Sandy Clay w/Gravel, Tan, Loose, Moist WL = 28.93 ft.
35		CL	Sandy Clay, Tan, Loose, Saturated
40		CL	Sandy Clay w/Gravel, Tan, Stiff, Saturated
45			TD = 40 ft.
50			
55			Bailed and Developed well
60			

Well: MW #3
Elev.:



Modeling Data Entry

Satellite # 4

Control Data	Entry	U / M
Deterministic	Yes	
Monte Carlo	No	
Evaporation	No	
Biodecay	No	
Low Permeability Layer Below Contamination	No	

Source Data		
Waste Zone Thickness	14	ft.
Waste Zone Area	2,500	sq. ft.
Ratio of Length to Width	1	
Soil Thickness Above Waste Zone	12	ft.
Contaminant Concentration in Soil / Waste Zone	10	ppm
Hydrocarbon Concentration in Soil / Waste Zone	10,000	ppm

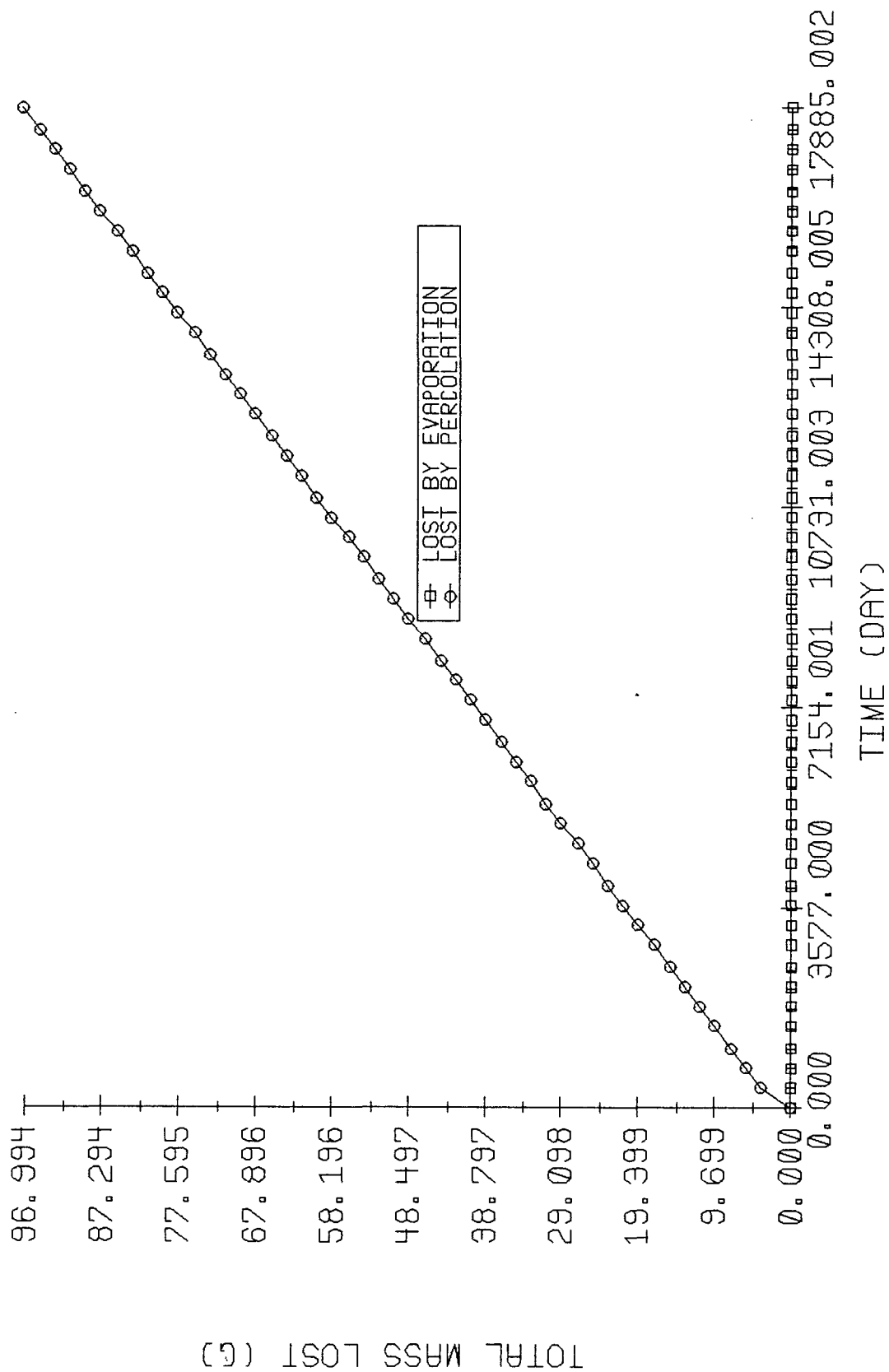
Chemical Data	
Benzene	Yes

Unsaturated Zone		
Biodecay Coefficient	0	
Organic Carbon Fraction	0	
Soil Database	Clay	
Hydrological Database	Sedimentary	
Unsaturated Zone Thickness	1	meter
Soil Database	Clay	
van Genuchten n	1.09	(Default)
Residual Water Content	0.01001	
Unsaturated Zone Dispersivity	0	Internally

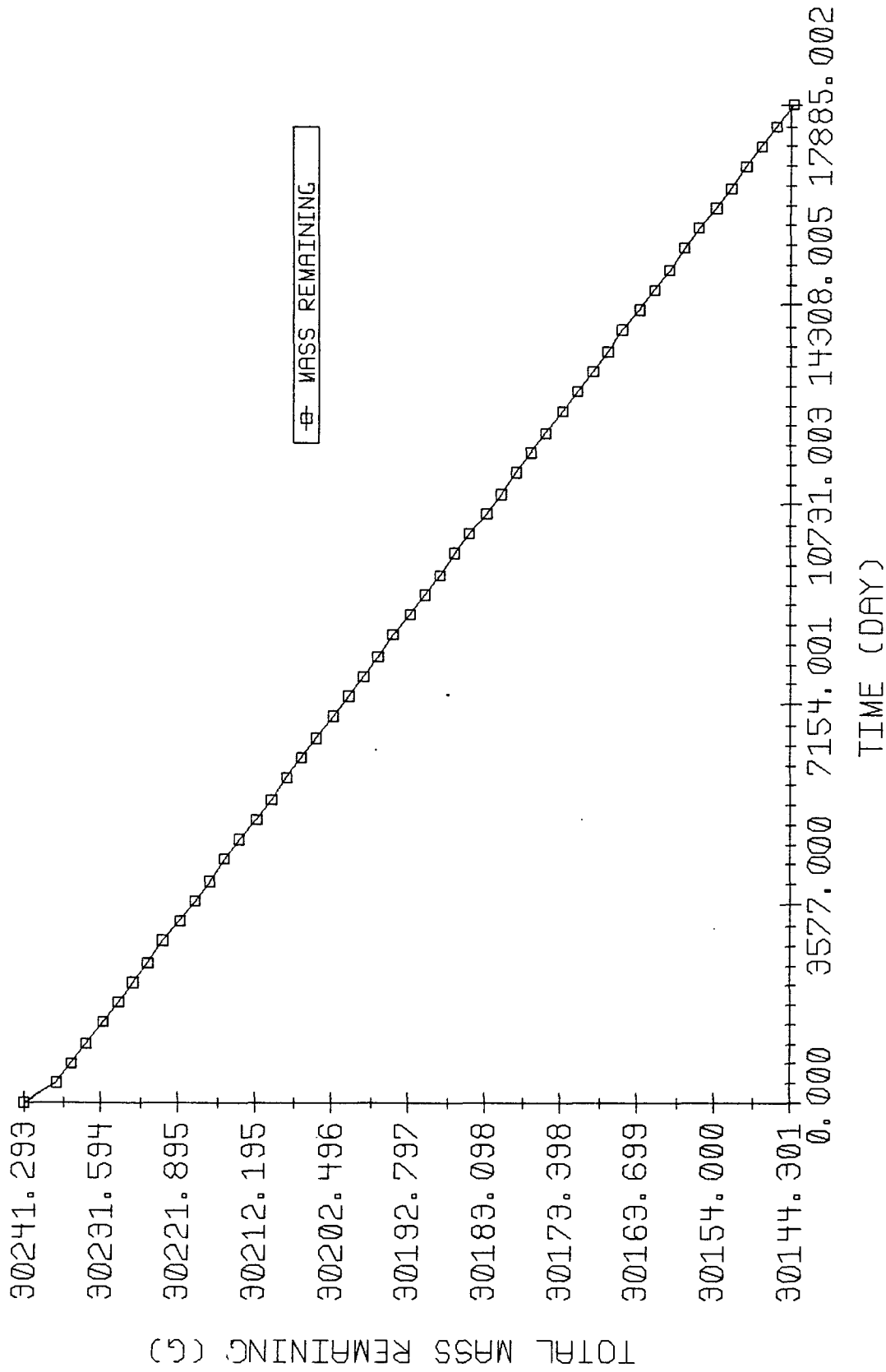
Saturated Zone		
Biodecay Coefficient	0	
Aquifer Porosity	0.2	(Default)
Organic Carbon Fraction	0	
Longitudinal Dispersivity	0	Internally
Ratio of Long. / Trans. Dispersivities	3	
Ratio of Trans. / Vert. Dispersivities	3	
Hydrological Database	Sedimentary	
Aquifer Thickness	60	ft. / day
Aquifer Gradient	0.00357	
Saturated Hydraulic Conductivity	0.0986	ft. / day

Net Infiltration Rate	0.00001	ft. / day
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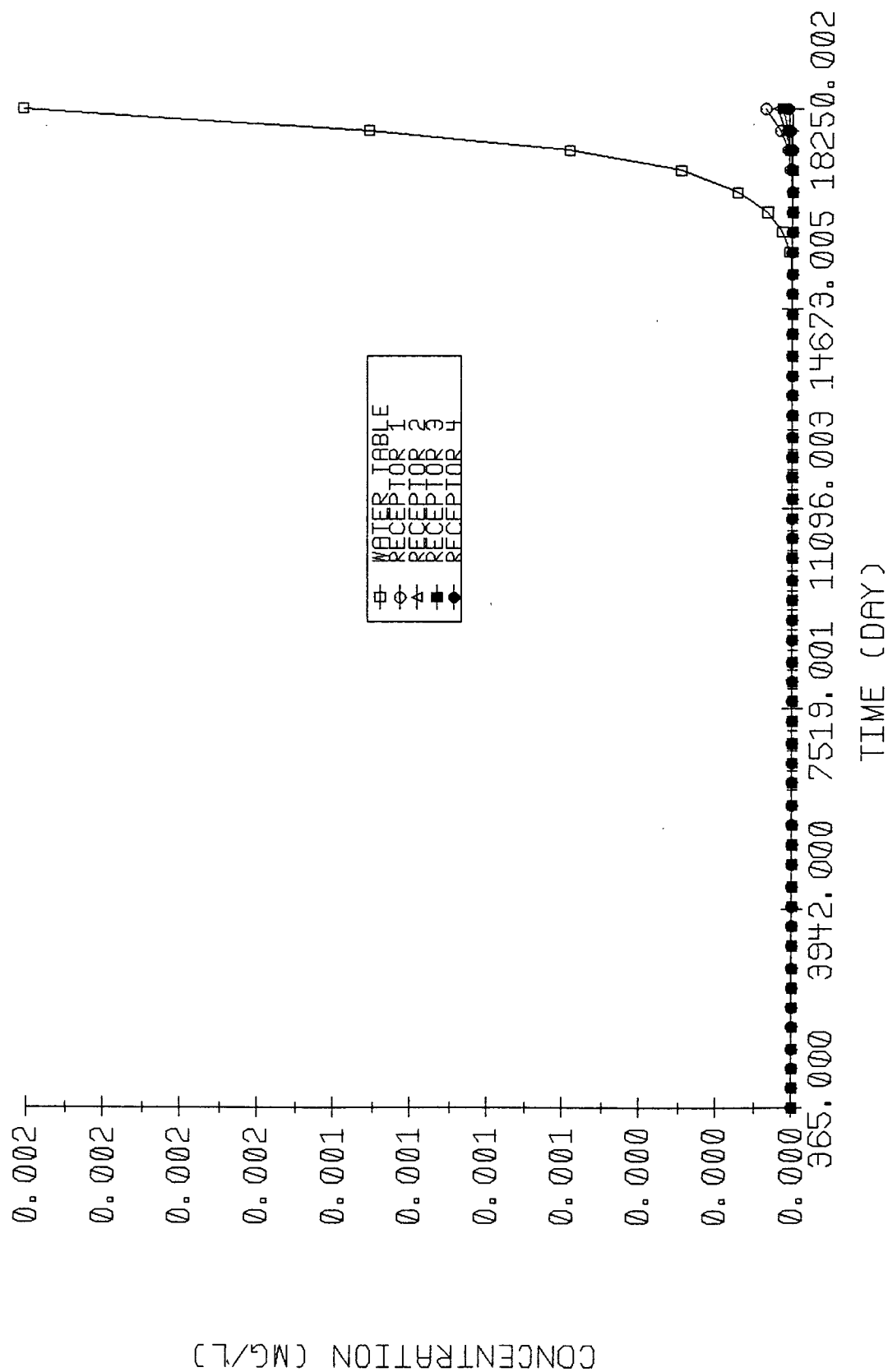
MASS LOST VS TIME



MASS REMAINING VS TIME



CONCENTRATION VS. TIME





Satellite # 4
Water Sampling Results

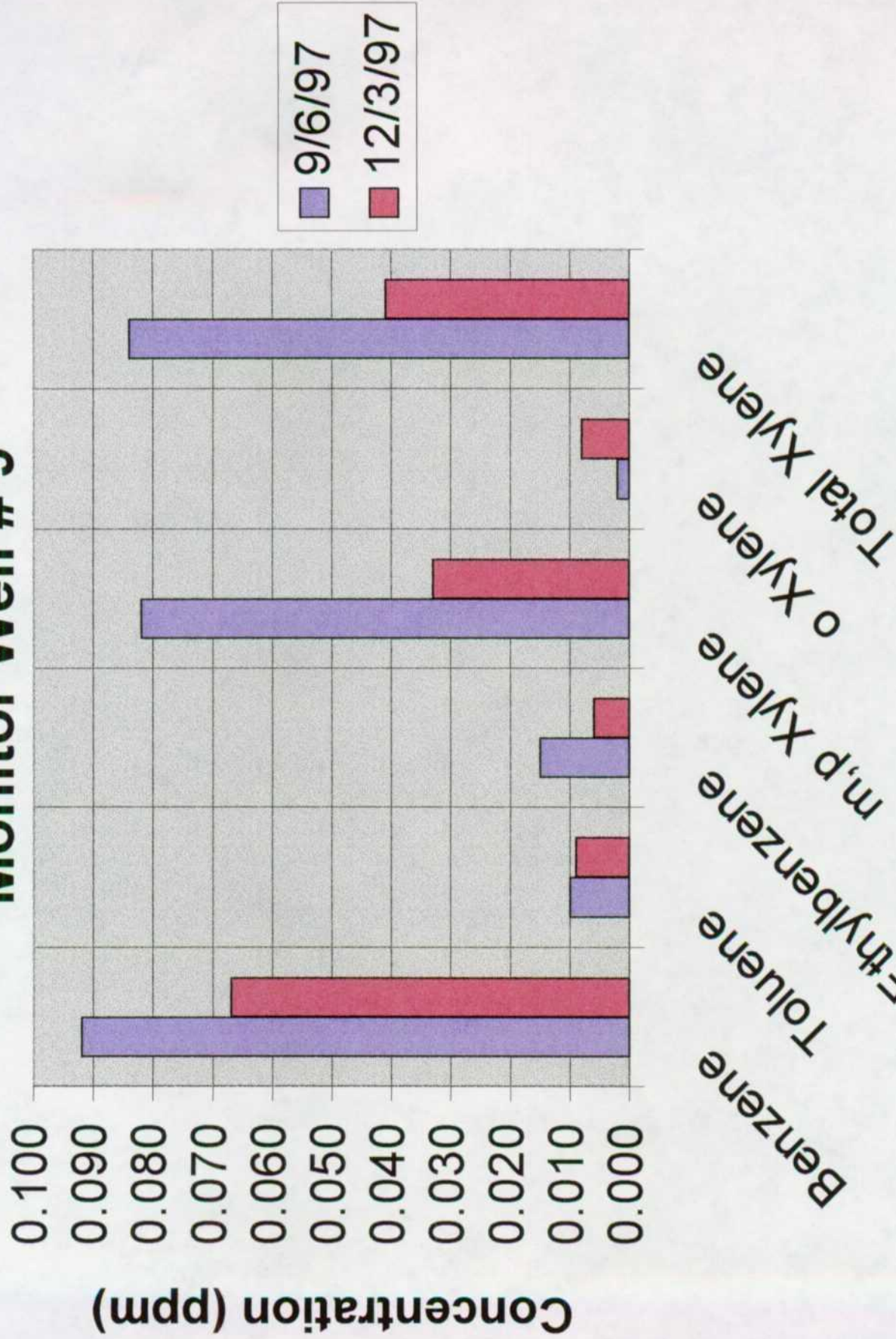
Sample I.D. (Lab)	ELT 12485	ELT 12727	ELT 12728	New Mexico WQCC Allowable Concentrations
Date Sampled	9/30/97	10/2/97	10/2/97	
Date Analyzed	9/9/97	10/5/97	10/5/97	
Source I.D.	M.W. # 9	M.W. # 23	MW # 24	

BTEX				
Benzene	0.092	0.001	<.001	0.010
Toluene	0.010	0.001	<.001	0.750
Ethylbenzene	0.015	<.001	<.001	0.750
m,p xylene	0.082	0.002	0.002	
o xylene	0.002	<.001	0.001	
(Ttl. Xylene)	0.084	0.002	0.003	0.620

Monitor Well # 9
Satellite # 4
Sampling Results

Lab. #	12485	13191
Sample Date	9/6/97	12/3/97
Benzene	0.092	0.067
Toluene	0.010	0.009
Ethylbenzene	0.015	0.006
m,p Xylene	0.082	0.033
o Xylene	0.002	0.008
Total Xylene	0.084	0.041
Total BTEX	0.285	0.123

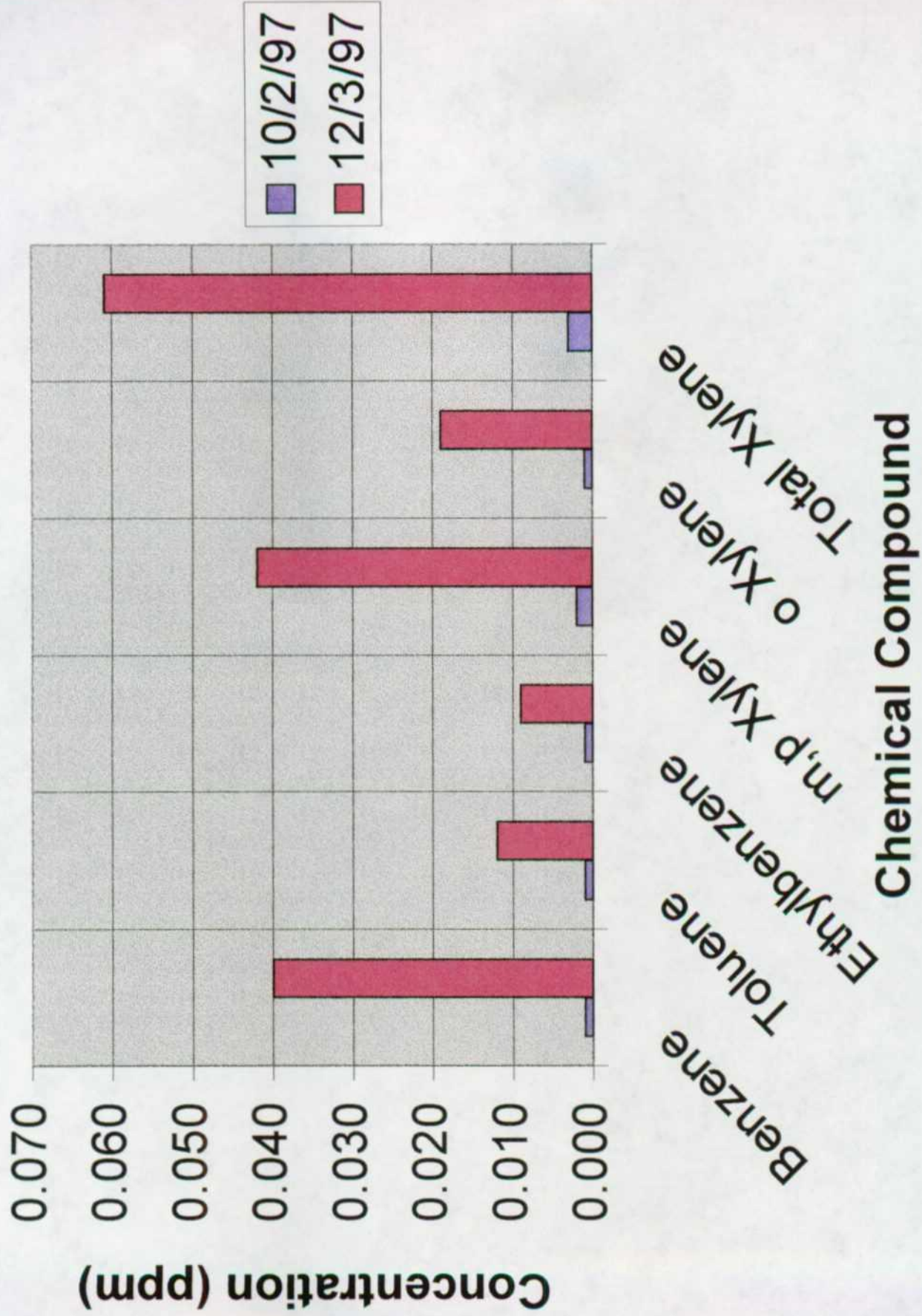
Monitor Well # 9



Monitor Well # 23
Satellite # 4
Sampling Results

Lab. #	12727	13192
Sample Date	10/2/97	12/3/97
Benzene	0.001	0.040
Toluene	0.001	0.012
Ethylbenzene	0.001	0.009
m,p Xylene	0.002	0.042
o Xylene	0.001	0.019
Total Xylene	0.003	0.061
Total BTEX	0.009	0.122

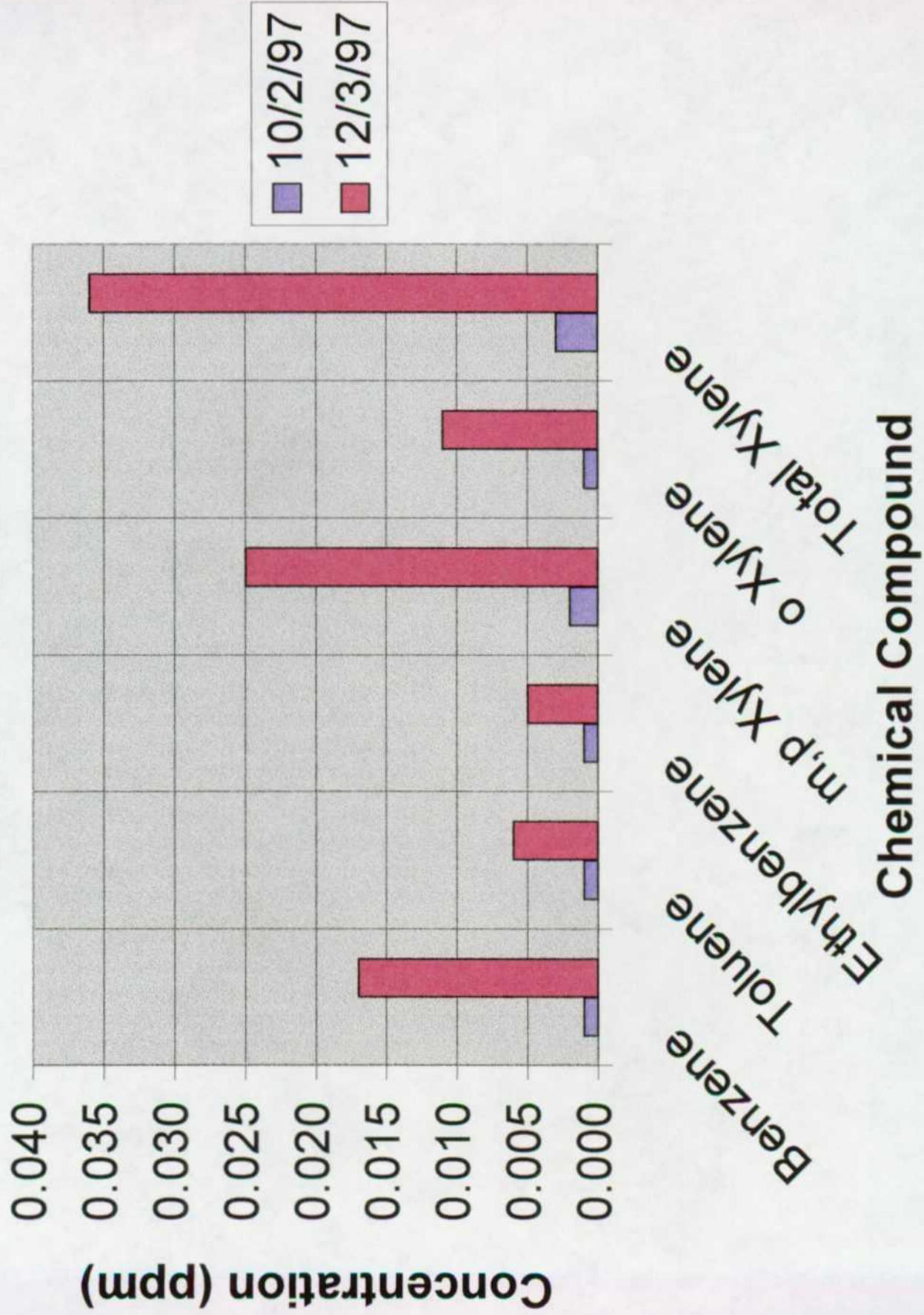
Monitor Well # 23



Monitor Well # 24
Satellite # 4
Sampling Results

Lab. #	12728	13193
Sample Date	10/2/97	12/3/97
Benzene	0.001	0.017
Toluene	0.001	0.006
Ethylbenzene	0.001	0.005
m,p Xylene	0.002	0.025
o Xylene	0.001	0.011
Total Xylene	0.003	0.036
Total BTEX	0.009	0.064

Monitor Well # 24



ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

TIPPERARY
ATTN: MR. VICTOR A. VICE
P.O. BOX 857
TATUM, NM 88267
FAX: 800-854-4358

Receiving Date: 12/03/97
Sample Type: WATERS
Project: TATUM, NM
Project Location: TATUM, NM

Analysis Date: 12/03/97
Sampling Date: 12/03/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE (mg/l)	TOLUENE (mg/l)	ETHYLBENZENE (mg/l)	m,p-XYLENE (mg/l)	o-XYLENE (mg/l)
13184	VERA MW-5	0.002	0.001	0.003	0.014	0.005
13185	G.S. STATE MW-21	0.166	0.013	0.059	0.705	0.010
13186	SOHIO STATE "1" MW-10	2.148	0.082	0.173	0.930	0.313
13187	SOHIO STATE "1" MW-17	1.409	0.053	0.116	0.535	0.192
13188	SOHIO STATE "1" MW-10	2.063	0.178	0.118	<0.001	<0.001
13189	SOHIO STATE "A" MW-19	0.009	0.002	0.003	0.541	0.318
13190	SOHIO STATE "A" MW-20	0.284	0.005	0.008	0.044	0.004
13191	SAT "4" MW-9	0.067	0.009	0.006	0.033	0.008
13192	SAT "4" MW-23	0.040	0.012	0.009	0.042	0.019
13193	SAT "4" MW-24	0.017	0.006	0.005	0.025	0.011
% IA		93	93	93	92	95
% EA		101	101	103	102	104
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

12-5-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/08/97
Sample Type: WATER
Project: TIPPERARY
Project Location: NONE GIVEN

Analysis Date: 09/09/97
Sampling Date: 09/05/97, 09/06/97
Sample Condition: Intact/Ice

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12475	IVA COM MW#1	<.001	<.001	<.001	0.002	0.007
12476	IVA COM MW#2	<.001	<.001	<.001	<.001	<.001
12477	IVA COM SW	3.129	2.551	0.209	1.182	0.094
12478	GS #12	1.834	0.055	0.061	3.085	0.084
12481	BELL #6	0.687	0.013	0.024	0.060	0.006
12482	NBN #7	<.001	<.001	<.001	<.001	<.001
12483	SOHIO 1 #10	2.559	1.148	0.243	1.257	0.081
12484	SOHIO A #11	0.096	0.004	0.002	0.008	0.012
12485	SAT 4 #9	0.092	0.010	0.015	0.082	0.002
12486	NBF #8	0.302	0.208	0.039	0.253	0.161
12487	VERA #5	0.003	0.003	0.005	0.021	0.029
12488	MABLE MW #3	0.010	0.008	0.031	0.139	0.012
12489	MABLE MW #4	0.015	0.002	0.002	0.010	0.002
	% IA	111	111	112	111	113
	% EA	113	112	114	112	111
	BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020, 5030



Michael R. Fowler

9-10-97

Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

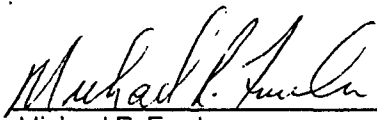
Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

4/1 copies

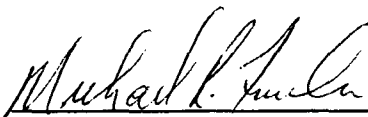
Receiving Date: 10/03/97
Sample Type: WATER
Project: TIPPERARY
Project Location: TATUM.N.M.

Analysis Date: 10/05/97
Sampling Date: 10/02/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/l	TOLUENE mg/l	ETHYLBENZENE mg/l	m,p-XYLENE mg/l	o-XYLENE mg/l
12720	MABLE COM SW-2	0.756	0.694	0.140	1.087	0.843
12721	G.S. STATE MW 21	0.026	0.008	0.005	0.090	0.034
12722	G.S. STATE MW 22	0.138	0.005	0.001	0.002	0.002
12723	SOHIO STATE #1 MW 17	0.799	0.128	0.141	0.628	0.292
12724	SOHIO STATE #1 MW 18	1.276	0.614	0.206	0.553	0.648
12725	SOHIO STATE A MW 19	0.003	<0.001	<0.001	0.002	0.001
12726	SOHIO STATE A MW 20	0.385	0.009	0.010	0.016	0.009
12727	SAT. 4 MW 7	0.001	0.001	<0.001	0.002	<0.001
12728	SAT. 4 MW 18	<0.001	<0.001	<0.001	0.002	0.001
12729	NBF MW 15	1.950	1.823	0.381	1.506	0.772
12730	NBF MW 16	0.835	0.111	0.090	0.224	0.089
12731	BELL A MW 13	1.309	0.003	0.020	0.013	<0.001
12732	BELL A MW 14	0.001	<0.001	<0.001	<0.001	<0.001

% IA	107	110	111	108	111
% EA	105	108	109	107	110
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001

METHODS: SW 846-8020,5030


Michael R. Fowler

10-27-97
Date



Satellite # 4
Soil Sampling Results

	North Wall	East Wall	South Wall	West Wall	Bottom	Cover	
Date Sampled	8/28/97	8/28/97	8/28/97	8/28/97	8/28/97	10/27/97	
Date Tested	8/29/97	8/29/97	8/29/97	8/29/97	8/29/97	10/28/97	
ELT#	12385	12386	12387	12388	12389	12942	
							Allowable
Benzene	<.100	<.100	<.100	<.100	<.100	<.100	10.0
Toluene	<.100	<.100	<.100	<.100	0.280	<.100	
Ethylbenzene	<.100	<.100	<.100	<.100	0.533	<.100	
m,p Xylene	0.216	<.100	2.292	0.192	1.786	<.100	
o Xylene	0.105	<.100	0.198	<.100	1.290	<.100	
Total BTEX	0.321	ND	2.490	0.192	6.379	ND	50.0
TPH	101	111	44	11	259	100	10,000

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 10/28/97
Sample Type: SOIL
Project: TIPPERARY
Project #: TATUM PIT CLOSURE
Project Location: TATUM, NEW MEXICO

Analysis Date: 10/28/97
Sampling Date: 10/27/97
Sample Condition: Intact

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	TPH mg/kg
12942	Sat. 4 Surface Retest	<0.100	<0.100	<0.100	<0.100	<0.100	100
12943	Sohio State #1 Surface Retest	<0.100	0.238	0.151	0.338	0.146	10

% IA	88	90	91	88	91	100
% EA	94	98	99	96	98	117
BLANK	<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,EPA 418.1


Michael R. Fowler

10-28-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 1-281-646-8996

Receiving Date: 09/01/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 09/02/97
Sampling Date: 08/29/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12421	IVA FINAL	<.100	<.100	<.100	0.105	<.100	<10
12422	MABLE FINAL	<.100	0.165	0.129	0.255	<.100	11
12423	VERA FINAL	<.100	0.126	<.100	0.192	<.100	10
12424	BELL FINAL	<.100	<.100	<.100	<.100	<.100	24
12425	NBN FINAL	<.100	<.100	<.100	<.100	<.100	103
12426	NBF FINAL	<.100	<.100	<.100	<.100	<.100	<10
12427	SOHIO A FINAL	0.186	0.312	0.232	0.737	0.580	6.702
12428	SOHIO 1 FINAL	<.100	0.373	0.142	0.463	0.342	15.016
12429	G.S. FINAL	<.100	<.100	<.100	<.100	<.100	15
12430	SAT. 4 FINAL	*	*	*	*	*	*
12431	G.S. BOTTOM (RE TEST)	<.100	<.100	<.100	0.217	0.166	2.963
% IA		98	95	96	95	99	107
% EA		93	85	81	78	80	93
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

* NOTE SAMPLE CONTAINER WAS EMPTY.

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date

ENVIRONMENTAL LAB OF , INC.

"Don't Treat Your Soil Like Dirt!"

WHOLE EARTH ENVIRONMENTAL
ATTN: MR. MIKE GRIFFIN
19606 SAN GABRIEL
HOUSTON, TEXAS 77084
FAX: 281-646-8996

Receiving Date: 08/29/97
Sample Type: SOIL
Project: TIPPERARY
Project Location: TATUM, N.M.

Analysis Date: 08/29/97
Sampling Date: 08/28/97
Sample Condition: Intact/Iced

ELT#	FIELD CODE	BENZENE mg/kg	TOLUENE mg/kg	ETHYLBENZENE mg/kg	m,p-XYLENE mg/kg	o-XYLENE mg/kg	DRO (C10-C28) mg/kg
12380	GULF STATE N	<.100	<.100	<.100	0.121	<.100	140
12381	GULF STATE S	0.668	0.620	0.687	1.458	0.639	1,655
12382	GULF STATE E	<.100	<.100	0.116	0.447	0.268	2.001
12383	GULF STATE W	<.100	0.198	0.332	0.926	0.875	3.268
12384	GULF STATE BOTTOM	0.246	9.990	6.921	46.02	20.95	4,058
12385	SATELLITE 4 N	<.100	<.100	<.100	0.216	0.105	101
12386	SATELLITE 4 E	<.100	<.100	<.100	<.100	<.100	111
12387	SATELLITE 4 S	<.100	<.100	<.100	0.292	0.198	44
12388	SATELLITE 4 W	<.100	<.100	<.100	0.192	<.100	11
12389	SATELLITE 4 B	<.100	0.280	0.533	1.786	1.290	259
12391	SOHIO ST. 1 N	<.100	0.121	<.100	<.100	<.100	<10
12392	SOHIO ST. 1 E	<.100	0.222	0.112	0.703	0.440	36
12393	SOHIO ST. 1 S	<.100	<.100	<.100	0.760	0.334	786
12394	SOHIO ST. 1 W	<.100	<.100	<.100	<.100	<.100	25
12395	SOHIO ST. 1 B	<.100	<.100	<.100	0.102	<.100	<10
12396	SOHIO ST. A N	<.100	<.100	<.100	<.100	<.100	10
12397	SOHIO ST. A E	<.100	<.100	<.100	<.100	<.100	29
12398	SOHIO ST. A S	<.100	<.100	<.100	<.100	<.100	10
12399	SOHIO ST. A W	<.100	<.100	<.100	0.110	<.100	10
12400	SOHIO ST. A B	<.100	<.100	<.100	0.136	<.100	<10
% IA		85	90	87	87	88	105
% EA		110	112	112	110	110	79
BLANK		<0.001	<0.001	<0.001	<0.001	<0.001	<10

METHODS: SW 846-8020,5030,8015m DRO


Michael R. Fowler

10-27-97
Date



Tipperary Oil & Gas
P.O. Box 857
Tatum, NM 88267

9/22/97

Gandy Marley, Inc.

P.O. Box 1658 Roswell, NM 88202
Phone 505-625-9206 Fax 505-625-9706

Detailed Report of material received between 8-1-97 and 8-31-97

EXEMPT OCD

Origin: SATALLITE #4

Date:	Ticket No:	Discription:	Transporter:	Cell:	Units	Unit Type
8/18/97	1897	OCD EXEMPT SLUDGES	Gandy Inc.	7	185	BBLS
8/19/97	1942	OCD EXEMPT SLUDGES	Gandy Inc.	7	360	BBLS

SATALLITE #4 Total Units.

545 BBLS

EXEMPT OCD Total BBLS.

545 BBLS

Origin: BELL STATE A

Date:	Ticket No:	Discription:	Transporter:	Cell:	Units	Unit Type:
8/16/97	1890	OCD EXEMPT SOILS	Gandy Inc.	7	160	Yards
8/18/97	1897	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/18/97	1893	OCD EXEMPT SOILS	Gandy Inc.	7	14	Yards
8/18/97	1895	OCD EXEMPT SOILS	Gandy Inc.	7	60	Yards

BELL STATE A Total Units.

262 Yards

Origin: GULF STATION #1

Date:	Ticket No:	Discription:	Transporter:	Cell:	Units	Unit Type:
8/30/97	1941	OCD EXEMPT SOILS	Gandy Inc.	7	120	Yards

GULF STATION #1 Total Units.

120 Yards

Origin: ~~NMB~~ ^{NBN}

Date:	Ticket No:	Discription:	Transporter:	Cell:	Units	Unit Type:
8/22/97	1926	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/22/97	1928	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/22/97	1929	OCD EXEMPT SOILS	Gandy Inc.	7	22	Yards
8/22/97	1931	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards

NMB Total Units.

106 Yards

Origin: VERA

Date:	Ticket No:	Discription:	Transporter:	Cell:	Units	Unit Type:
8/21/97	1915	OCD EXEMPT SOILS	Gandy Inc.	7	42	Yards
8/21/97	1916	OCD EXEMPT SOILS	Gandy Inc.	7	42	Yards
8/21/97	1917	OCD EXEMPT SOILS	Gandy Inc.	7	42	Yards
8/21/97	1919	OCD EXEMPT SOILS	Gandy Inc.	7	40	Yards
8/22/97	1918	OCD EXEMPT SOILS	Gandy Inc.	7	246	Yards
8/22/97	1920	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/22/97	1921	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/22/97	1922	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/22/97	1924	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards



Tipperary Oil & Gas
P.O. Box 857
Tatum, NM 88267

9/22/97

Gandy Marley, Inc.

P.O. Box 1658 Roswell, NM 88202
Phone 505-625-9206 Fax 505-625-9706

Detailed Report of material received between 8-1-97 and 8-31-97

VERA Total Units.

524 Yards

Origin: SATALLITE #4

Date:	Ticket No:	Discription:	Transporter:	Cell:	Units	Unit Type:
8/18/97	1894	OCD EXEMPT SOILS	Gandy Inc.	7	56	Yards
8/18/97	1896	OCD EXEMPT SOILS	Gandy Inc.	7	42	Yards
8/18/97	1898	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/20/97	1943	OCD EXEMPT SOILS	Gandy Inc.	7	190	Yards

SATALLITE #4 Total Units.

316 Yards

Origin: SOHIO A#1

Date:	Ticket No:	Discription:	Transporter:	Cell:	Units	Unit Type:
8/23/97	1934	OCD EXEMPT SOILS	Gandy Inc.	7	63	Yards

SOHIO A#1 Total Units.

63 Yards

Origin: SOHIO A#1 STATE

Date:	Ticket No:	Discription:	Transporter:	Cell:	Units	Unit Type:
8/22/97	1923	OCD EXEMPT SOILS	Gandy Inc.	7	22	Yards
8/22/97	1925	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/22/97	1927	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/22/97	1930	OCD EXEMPT SOILS	Gandy Inc.	7	14	Yards
8/22/97	1932	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/23/97	1935	OCD EXEMPT SOILS	Gandy Inc.	7	56	Yards
8/23/97	1937	OCD EXEMPT SOILS	Gandy Inc.	7	56	Yards
8/23/97	1938	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/27/97	1933	OCD EXEMPT SOILS	Gandy Inc.	7	28	Yards
8/27/97	1936	OCD EXEMPT SOILS	Gandy Inc.	7	14	Yards
8/27/97	1939	OCD EXEMPT SOILS	Gandy Inc.	7	14	Yards
8/27/97	1940	OCD EXEMPT SOILS	Gandy Inc.	7	84	Yards

SOHIO A#1 STATE Total Units.

400 Yards

EXEMPT OCD Total Yards.

1791 Yards

EXEMPT OCD Total Units.

2336 Units

Tipperary Oil & Gas Total Units.

2336 Units

Contaminated Soils Shipment Manifest

1. Manifest Document No.

105871-97

2. Page ____ of ____

3. Generator's Name and Mailing Address

Tipperary Oil & Gas
P. O. Box 857
Tatum, NM 88267

4. Generator Phone No.

505-398-6509

5. Generator Contact

Vic Vice

6. Transporter 1 Company Name

Gandy Corporation

7. ID No.

S.C.C. 14225

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address

Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number

12. Facility Phone No.

(505) 398 - 4960

13. Description of Waste

14. Containers

No.

Type

15. Total Quantity

16. Unit Wt/Vol

a. Contaminated soils and sludges from
Vera #1

dt

524.

yds

b.

c.

17. Special Handling Instructions and Additional Information

18. Generator's Certification:

I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.

FURTHER, I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods

Printed/Typed Name

Vic Vice

Signature

Vic Vice

Date

09/08/99

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Rue Mauk

Signature

Rue Mauk

Date

09/08/97

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name

Larry Gandv

Signature

Larry Gandv

Date

12/9/1999

GENERATOR

TRANSPORTER

GM I

GANDY MARLEY, INC.
P. O. BOX 827
TATUM, NEW MEXICO 88267
TATUM, NEW MEXICO ROSWELL, NEW MEXICO

CERTIFICATE OF WASTE STATUS
OILFIELD EXEMPT WASTE MATERIAL

Originating Location: Satellite #4

Source: Overflow Pit

Disposal Location: Gandy-Marley, Inc.

"As a condition of acceptance for disposal, I hereby certify that this waste is an exempt waste as defined by the Environmental Protection Agency's (EPA) July 1988 Regulatory Determination. To my knowledge, this waste will be analyzed pursuant to the provisions of 40 CFR Part 261 to verify the nature as non-hazardous. I further certify that to my knowledge no "hazardous or listed waste" pursuant to the provisions of 40 CFR, Part 261, Subparts C and D, has been added or mixed with the waste so as to make the resultant mixture a "hazardous waste" pursuant to the provisions of 40 CFR, Section 261.3 (b)."

I, the undersigned as the agent for Tipperary Corporation
concur with the status of the waste from the subject site.

Name Vic Vice

Title/Agency Production Foreman

Address P. O. Box 857

Tatum, NM 88267

Signature 

Date 8-29-97

Contaminated Soils Shipment Manifest

1. Manifest Document No.

103796 - 97

2. Page ___ of ___

3. Generator's Name and Mailing Address

Tipperary Oil & Gas
P.O. Box 857
Tatum N.M. 88267

4. Generator Phone No.

505-398-6509

5. Generator Contact

Vic Vice

6. Transporter 1 Company Name

Gandy Corp.

7. ID No.

S.C.C. 14225

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address

Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number

12. Facility Phone No.

(505) 398 - 4960

13. Description of Waste

14. Containers

No. Type

15. Total Quantity

16. Unit Wt/Vol

a. contaminated soils and sludges from
Satallite # 4

dt

316

yds

b. sludges from pit

v t

545

bbls.

17. Special Handling Instructions and Additional Information

18. Generator's Certification: I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.

FURTHER, I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods

Printed/Typed Name

Vic Vice

Signature

[Signature]

Date

8/9/08

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Rue Mauk

Signature

[Signature]

Date

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date

Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name

Larry Gandy

Signature

[Signature]

Date

8/12/08

GENERATOR

TRANSPORTER

GANDY MARLEY, INC.
P. O. BOX 827
TATUM, NEW MEXICO 88267
TATUM, NEW MEXICO ROSWELL, NEW MEXICO

CERTIFICATE OF WASTE STATUS

OILFIELD EXEMPT WASTE MATERIAL

Originating Location: Bell State A #1

Source: Overflow Pit

Disposal Location: Gandy-Marley, Inc.

"As a condition of acceptance for disposal, I hereby certify that this waste is an exempt waste as defined by the Environmental Protection Agency's (EPA) July 1988 Regulatory Determination. To my knowledge, this waste will be analyzed pursuant to the provisions of 40 CFR Part 261 to verify the nature as non-hazardous. I further certify that to my knowledge no "hazardous or listed waste" pursuant to the provisions of 40 CFR, Part 261, Subparts C and D, has been added or mixed with the waste so as to make the resultant mixture a "hazardous waste" pursuant to the provisions of 40 CFR, Section 261.3 (b)."

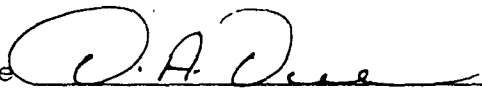
I, the undersigned as the agent for Tipperary Corporation
concur with the status of the waste from the subject site.

Name Vic Vice

Title/Agency Production Foreman

Address P. O. Box 857

Tatum, NM 88267

Signature 

Date 8-18-97

Contaminated Soils Shipment Manifest

1. Manifest Document No.

103791 - 97

2. Page ___ of ___

3. Generator's Name and Mailing Address

Tipperary Oil & Gas
P.O.Box 857
- Tatum N.M. 88267

4. Generator Phone No.

505-3986409

5. Generator Contact

Vic Vice

6. Transporter 1 Company Name

Gandy Corp

7. ID No.

S.C.C. 14225

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address

Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number

nmocd (NM-711-1-0020)

12. Facility Phone No.

(505) 398 - 4960

13. Description of Waste

14. Containers

15. Total Quantity

16. Unit Wt/Vol

No.

Type

a.

contaminated soils & b.s. from
Bell A # 1

1

D T

262

yds

b.

c.

81

41

17. Special Handling Instructions and Additional Information

18. Generator's Certification:

I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.

FURTHER, I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods

Printed/Typed Name

Vic Vice

Signature

Vic Vice

Date

09/08/97

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Rue Mauk

Signature

Rue Mauk

Date

10/11/97

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date

10/11/97

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name

Larry Gandy

Signature

Larry Gandy

Date

08/11/97

GENERATOR

TRANSPORTER

MANIFEST

GANDY MARLEY, INC.
P. O. BOX 827
TATUM, NEW MEXICO 88267
TATUM, NEW MEXICO ROSWELL, NEW MEXICO

CERTIFICATE OF WASTE STATUS

OILFIELD EXEMPT WASTE MATERIAL

Originating Location: Gulf State #1

Source: Overflow PIT

Disposal Location: Gandy-Marley, Inc.

"As a condition of acceptance for disposal, I hereby certify that this waste is an exempt waste as defined by the Environmental Protection Agency's (EPA) July 1988 Regulatory Determination. To my knowledge, this waste will be analyzed pursuant to the provisions of 40 CFR Part 261 to verify the nature as non-hazardous. I further certify that to my knowledge no "hazardous or listed waste" pursuant to the provisions of 40 CFR, Part 261, Subparts C and D, has been added or mixed with the waste so as to make the resultant mixture a "hazardous waste" pursuant to the provisions of 40 CFR, Section 261.3 (b)."

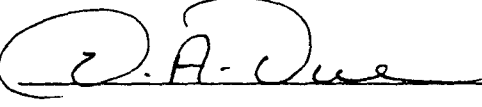
I, the undersigned as the agent for Tipperary Corporation
concur with the status of the waste from the subject site.

Name Vic Vice

Title/Agency Production Foreman

Address P. O. Box 857

Tatum, NM 88267

Signature 

Date 8-28-97

Contaminated Soils Shipment Manifest

1. Manifest Document No.

103793 -

97

2. Page ____ of ____

3. Generator's Name and Mailing Address

Tipperary Oil & Gas
P.O. Box 857
Tatum, N.M. 88267

4. Generator Phone No.

505-398-6509

5. Generator Contact

Vic Vice

6. Transporter 1 Company Name

Gandy Corp.

7. ID No.

S.C.C. 14225

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address

Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number

NMOC D (711-1-0020)

12. Facility Phone No.

(505) 398 - 4960

13. Description of Waste

14. Containers

No.

Type

15. Total Quantity

16. Unit Wt/Vol

a. contaminated soils & b.s. from
Gulf St. #1

D, T

120

yds.

b.

c.

17. Special Handling Instructions and Additional Information

18. Generator's Certification:

I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.

FURTHER, I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods

Printed/Typed Name

Vic Vice

Signature

V.A. Vice

Date

090892

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Rue Mauk

Signature

Rue Mauk

Date

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name

Larry Gandy

Signature

Larry Gandy

Date

082897

GENERATOR

TRANSPORTER

GANDY MARLEY, INC.
P. O. BOX 827
TATUM, NEW MEXICO 88267
TATUM, NEW MEXICO ROSWELL, NEW MEXICO

CERTIFICATE OF WASTE STATUS

OILFIELD EXEMPT WASTE MATERIAL

Originating Location: _____ State NBN #1 _____

Source: _____ Overflow Pit _____

Disposal Location: _____ Gandy-Marley, Inc. _____

"As a condition of acceptance for disposal, I hereby certify that this waste is an exempt waste as defined by the Environmental Protection Agency's (EPA) July 1988 Regulatory Determination. To my knowledge, this waste will be analyzed pursuant to the provisions of 40 CFR Part 261 to verify the nature as non-hazardous. I further certify that to my knowledge no "hazardous or listed waste" pursuant to the provisions of 40 CFR, Part 261, Subparts C and D, has been added or mixed with the waste so as to make the resultant mixture a "hazardous waste" pursuant to the provisions of 40 CFR, Section 261.3 (b)."

I, the undersigned as the agent for Tipperary Corporation
concur with the status of the waste from the subject site.

Name _____ Vic Vice _____

Title/Agency _____ Production Foreman _____

Address _____ P. O. Box 857 _____

_____ Tatum, NM 88267 _____

Signature _____ *V. A. Usee* _____

Date _____ 8-22-97 _____

Contaminated Soils Shipment Manifest

1. Manifest Document No.

1 0 3 7 8 8

2. Page ___ of ___

3. Generator's Name and Mailing Address

Tipperary Oil & Gas
P.O.Box 857
Tatum N.M. 88267-0857

4. Generator Phone No.

(505) 398-6509

5. Generator Contact

Victor A. Vice

6. Transporter 1 Company Name

Gandy Corp

7. ID No.

S.C.C. 14225

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address

Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number

NMOCD (NM-711-1-0020)

12. Facility Phone No.

(505) 398 - 4960

13. Description of Waste

14. Containers

No.

Type

15. Total
Quantity

16. Unit
Wt/Vol

a. contaminated soils & b.s. from old pit
on State NBN #1

DT

106

yds

b.

c.

17. Special Handling Instructions and Additional Information

n/a

18. Generator's Certification:

I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.

FURTHER, I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods

Printed/Typed Name

Vic Vice

Signature

V. A. Vice

Date

0 9 0 8 9 7

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Larry Gandy

Signature

Larry Gandy

Date

0 8 2 2 9 7

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name

Larry Gandy

Signature

Larry Gandy

Date

0 8 2 2 9 7

GENERATOR

TRANSPORTER

MANIFEST

126740 8/30/97
545 12612-545

GANDY MARLEY, INC.
P. O. BOX 827
TATUM, NEW MEXICO 88267
TATUM, NEW MEXICO ROSWELL, NEW MEXICO

CERTIFICATE OF WASTE STATUS
OILFIELD EXEMPT WASTE MATERIAL

Originating Location: Sohio State #1

Source: Overflow pit

Disposal Location: Gandy-Marley, Inc.

"As a condition of acceptance for disposal, I hereby certify that this waste is an exempt waste as defined by the Environmental Protection Agency's (EPA) July 1988 Regulatory Determination. To my knowledge, this waste will be analyzed pursuant to the provisions of 40 CFR Part 261 to verify the nature as non-hazardous. I further certify that to my knowledge no "hazardous or listed waste" pursuant to the provisions of 40 CFR, Part 261, Subparts C and D, has been added or mixed with the waste so as to make the resultant mixture a "hazardous waste" pursuant to the provisions of 40 CFR, Section 261.3 (b)."

I, the undersigned as the agent for Tipperary Corporation
concur with the status of the waste from the subject site.

Name Vic Vice

Title/Agency Production Foreman

Address P. O. Box 857

Tatum, NM 88267

Signature C. A. D.

Date 8-13-97

Contaminated Soils Shipment Manifest

1. Manifest Document No.
103794 - 97

2. Page ___ of ___

3. Generator's Name and Mailing Address

Tipperary Oil & Gas
P.O. Box 857
Tatum, N.M.. 88267

4. Generator Phone No.

Vic Vice

5. Generator Contact

505-398-6509

6. Transporter 1 Company Name

Gandy Corp

7. ID No.

S.C.C. 14225

8. Transporter 2 Company Name

9. ID No.

10. Designated Disposal Facility Name and Site Address

Gandy Marley, Inc. Contaminated Soils Landfarm
7200 East Second Street
PO Box 1658
Roswell, NM 88201

11. Facility Permit Number

NMOCD (NM-711-1-0020)

12. Facility Phone No.

(505) 398 - 4960

13. Description of Waste

14. Containers

15. Total Quantity

16. Unit Wt/Vol

a. contaminated soil & b.s. from
Sohio ~~SA~~ # 1

No. Type

D T

63

Yds.

b.

c.

17. Special Handling Instructions and Additional Information

18. Generator's Certification:

I hereby declare that the contents of the consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable federal, state, and international laws.

FURTHER, I represent and warrant that the waste material as described on this manifest is either exempt from the Resource Conservation and Recovery Act of 1976, OR has been characterized as non-hazardous material by virtue of appropriate laboratory analysis done in accordance with EPA-approved testing methods

Printed/Typed Name

Vic Vice

Signature

V. A. Vice

Date

09/08/97

19. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Rue Mauk

Signature

Rue Mauk

Date

20. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date

21. Discrepancy Information

22. Facility Owner or Operator Certification of receipt of materials described on this manifest except as noted in item 21.

Printed/Typed Name

Larry Gandy

Signature

Larry Gandy

Date

08/13/97

GENERATOR

TRANSPORTER

MANIFEST

GANDY MARLEY, INC.
P. O. BOX 827
TATUM, NEW MEXICO 88267
TATUM, NEW MEXICO ROSWELL, NEW MEXICO

CERTIFICATE OF WASTE STATUS
OILFIELD EXEMPT WASTE MATERIAL

Originating Location: Sohio A #1

Source: Overflow pit

Disposal Location: Gandy-Marley, Inc.

"As a condition of acceptance for disposal, I hereby certify that this waste is an exempt waste as defined by the Environmental Protection Agency's (EPA) July 1988 Regulatory Determination. To my knowledge, this waste will be analyzed pursuant to the provisions of 40 CFR Part 261 to verify the nature as non-hazardous. I further certify that to my knowledge no "hazardous or listed waste" pursuant to the provisions of 40 CFR, Part 261, Subparts C and D, has been added or mixed with the waste so as to make the resultant mixture a "hazardous waste" pursuant to the provisions of 40 CFR, Section 261.3 (b)."

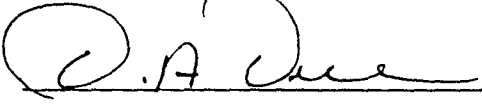
I, the undersigned as the agent for Tipperary Corporation
concur with the status of the waste from the subject site.

Name Vic Vice

Title/Agency Production Foreman

Address P.O. Box 857

Tatum, NM 88267

Signature 

Date 8-14-97