1R - 279

REPORTS

DATE:

2000

Highlander Environmental Corp.

Midland, Texas

January 13, 2000

Mr. William C. Olson, Hydrogeologist
Environmental Bureau
Oil Conservation Division
Energy, Minerals and Natural Resources Department
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Annual Groundwater Monitoring Report – (1999) Quarterly Groundwater Monitoring at the Texaco, Buckeye Vacuum Field Unit, Lea County, New Mexico

Dear Mr. Olson:

Introduction

Highlander Environmental Corp. (Highlander) has been requested by Texaco Exploration and Production, Inc. (TEPI) to conduct quarterly monitoring of groundwater from ten (10)-monitoring wells and two extraction wells at the Vacuum Field Unit, located in Buckeye, Lea County, New Mexico. The Site is located in Section 1, Township 18 South, Range 34, East. The Site location is shown in Figure 1. The wells monitored are shown in Figure 2. This report presents the results of groundwater monitoring activities conducted at the Site during 1999.

Background

On October 1998, Highlander submitted "Groundwater Monitoring Report" to New Mexico Oil Conservation Division (NMOCD) and proposed to plug sixteen (16) monitor wells and continue to monitor seven (7) monitor wells and two (2) extraction wells (#1 and #2) on a quarterly basis for 1 year. On January 21, 1998, NMOCD a response letter approved the recommendation to monitor the seven (7) monitor wells listed in the Groundwater Monitoring Report. However, three additional monitor wells, TW-10, TW-13, and TW-20, were to be included in the quarterly monitoring program. Table 1 shows the wells monitored quarterly. The NMOCD approval response letter is shown in Appendix A.

Plugging Monitor wells

Prior to plugging the proposed wells, the NMOCD requested a work plan for the plugging and abandonment. On April 14, 1999, Highlander submitted " Workplan for the Plugging of Monitor wells". On June 14, 1999, the NMOCD response letter approved the plugging of proposed wells. A total of 13 wells have been plugged according to the approved workplan. Figure 2 shows the wells, which were plugged. Table 1 list the wells plugged. The NMOCD approval response letter is shown in Appendix A. Scarborough Drilling Inc. submitted a list of the plugged wells to State Engineer Office located in Roswell, New Mexico. The plugged well list is shown in Appendix A.

Groundwater Monitoring Activities

Prior to sampling, static water levels were obtained and then the monitor wells were purged using an electric submersible pump. The two extraction wells were pumping at the time of each sampling event. A minimum of three (3)-casing volumes of groundwater was removed from each well and contained in a portable tank. The water was transported to the Buckeye Plant, formerly owned by Texaco, for disposal in the plant sump. Following purging, groundwater samples were collected from the discharge from the pump. The pH, specific conductivity and temperature of the groundwater samples were measured at the time of sample collection and recorded in a bound field book. The groundwater samples were carefully transferred to appropriate containers, preserved, and transported under chain-of-custody control to Trace Analysis, Inc., Lubbock, Texas. The samples were analyzed for chloride by method EPA SM 4500 Cl-B. Appendix B presents the laboratory report.

On December 23, 1999, Piper Surveying Company resurveyed the 10 wells at the Site and the two extractions wells (#1 and #2). Static water levels were collected from the monitor wells and pumping levels from the two extraction wells. A pumping level could not be obtained from extraction well #1. The survey data is shown in Table 2. A water table map is shown in Figure 3. The ground water table map shows a flow direction to the pumping extraction well #2. The surrounding wells indicate groundwater capture and influence in the vicinity of extraction well #2. MW-10 did not show any influence from the pumping and may have plugged off well screen.

Laboratory Analysis and Results

Table 4 shows the quarterly sample results for 1999. Referring to Table 4, the chloride levels in the fourth quarter were all below the WQCC standard of 250 mg/l in samples from wells, except for TW-23. Figure 4 shows the fourth quarter sample results. A chloride concentration variation graph for the quarterly monitoring is show in Appendix B.

Chloride levels in monitor well TW-9 were above the WQCC standard during the first and second quarter sampling showing chloride levels of 370 mg/l and 290 mg/l, respectively. The samples collected in the third and fourth quarter showed decreasing chloride levels of 200 mg/l and 170 mg/l below the WQCC chloride standard.

TW-23 showed an increase in chloride concentration during the first quarter (1,100 mg/l), second quarter (1,400 mg/l) and third quarter (2,400 mg/l). Based on the increasing chloride level, monthly monitoring was performed on TW-23 in the fourth quarter. In addition, the producing VG SAU Well #58 located near TW-23 was plugged. The monthly monitoring showed a chloride level of 1,000 mg/l and 1,300 mg/l for the September and October, respectively. The fourth quarter sampling event showed a chloride level of 1,400 mg/l. The increasing levels encountered in TW-23 may have been related to the VG SAU Well # 58 or residual chloride present in the unsaturated zone. Once the well (VG SAU Well #58) was plugged, the chloride concentration has shown a drop in the groundwater.

Conclusions

1. The chloride levels were below the WQCC standard of 250 mg/l in samples from wells TW-10, TW-11, TW-13, TW-14, TW-15, TW-17, TW-19, TW- 20, and the two extraction wells (#1 and #2). These results remained consistent throughout the monitoring period.

2. Chloride levels in monitor well TW-9 were above the WQCC standard during the first and second quarter with chloride concentrations of 370 mg/l and 290 mg/l, respectively. The samples collected in the third and fourth quarter showed decreasing chloride levels of 200 mg/l and 170 mg/l.

3. TW-23 showed an increase in chloride concentration during the first, second and third quarters. Based on the increasing chloride level, the VG SAU Well #58-A was plugged. TW-23 was sampled monthly in the fourth quarter to monitor the chloride fluctuation. The monthly monitoring and fourth quarter sampling event showed decreased chloride level. The increasing chloride levels encountered in TW-23 may have been related to the VG SAU Well # 58 or residual chloride present in the unsaturated zone. Based on the chloride levels detected in surrounding monitor wells and two recovery wells, the chloride level encountered in TW-23 appears to be confined and shows no indication of horizontal migration.

Recommendations

1. Based on the chloride levels detected in TW-23, Highlander proposes to monitor the Site for one additional year on selected wells. Semi-annual monitoring is proposed on wells (TW-11, TW-14, TW-15, TW-17, TW-19 and TW-23) including the extraction wells #1 and #2 for chloride evaluation. A yearly report will be prepared and submitted for review. The remaining wells (TW-9, TW-10, TW-13 and TW-20) are proposed to be plugged. Figure 5 shows the wells proposed to be monitored and plugged.

Highlander appreciates the opportunity to support Texaco on this project. Please call if you have questions.

Sincerely,
Highlander Environmental Corp.

Ike Tavarez
Geologist/Project Manager

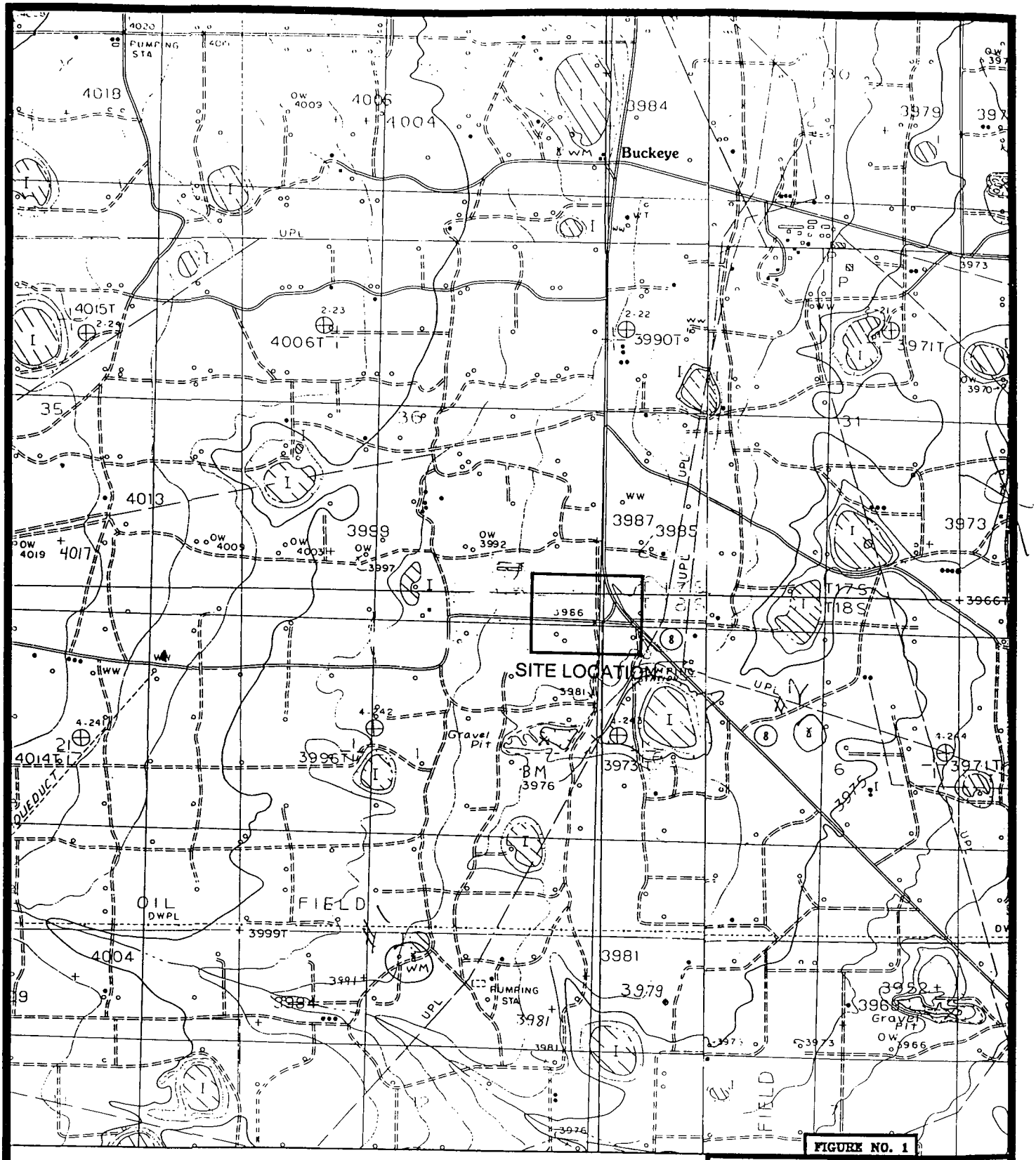
CC: Rodney Bailey - Texaco Exploration and Production, Inc.

Texaco Exploration and Production, Inc.
Texaco, Buckeye Vacuum Field Unit

Chronology of Events

1989	Texaco and NMOCD installed twenty-three (23) monitor wells (TW-1 through TW-23) and two extraction wells (#1 and #2) to locate the source and define the extent of chloride contamination.
2-19-90	Unichem International sampled monitor wells (TW-1 through TW-23) for chloride.
3-26-90	Unichem International sampled monitor wells (TW-1 through TW-23) for chloride.
5-1-90	Unichem International sampled monitor wells (TW-1 through TW-23) for chloride.
1-7-98	Highlander personnel performed groundwater monitoring. Sampled monitor wells (TW-1 through TW-23) and two (2) extraction wells (#1 and #2) for chloride.
2-24-98	Highlander resampled monitor well TW-23.
4-7-98	Highlander performed groundwater monitoring. Sampled monitor wells (TW-1 through TW-23) and two (2) extraction wells (#1 and #2) for chloride.
May 1998	Highlander submitted Report " Results of Groundwater Monitoring" to the NMOCD. The report contained recommendations for monitor well plugging and future closure of the Site.
8-19-98	NMOCD response letter requested BTEX samples from all (23) monitor wells and (2) extraction wells.
9-2-98	Highlander performed groundwater monitoring. Sampled monitor wells (TW-1 through TW-23) and two (2) extraction wells (#1 and #2) for chloride and BTEX.
October 1998	Highlander submitted "Groundwater Monitoring Report" to NMOCD. Proposed to plug sixteen (16) monitor wells and continue to monitor seven (7) monitor wells and two (2) extraction wells (#1 and #2) on a quarterly basis for 1 year.

1-29-98	NMOCD response letter approved recommendation to monitor the seven (7) monitor wells listed in the Groundwater Monitoring Report. However, three additional monitor wells, TW-10, TW-13, and TW-20, were included in the quarterly monitoring program. NMOCD requested a work plan for the plugging and abandonment of the monitor wells.
2-22-99	Highlander performed 1st quarter monitoring, sampling ten (10) monitor wells, and two extraction wells (#1 and #2) at the Site.
4-14-99	Highlander submitted "Workplan for Plugging of Monitor wells" to plug 13 monitor wells.
5-26-99	Highlander performed 2nd quarter monitoring, sampling ten (10) monitor wells, and two extraction wells (#1 and #2) at the Site.
6-14-99	NMOCD response letter approved the workplan for plugging (13) monitor wells
7-22-99 11-18-99	Scarborough Drilling Inc. plugged (13) monitor wells. (TW-1, TW-2, TW-3, TW-4, TW-5, TW-6, TW-7, TW-8, TW-12, TW-16, TW-18, TW-21, and TW-22)
8-19-99	Highlander performed 3rd quarter monitoring, sampling ten (10) monitor wells, and two extraction wells (#1 and #2) at the Site.
9-21-99	Highlander sampled TW-23 (monthly basis).
10-25-99	Highlander sampled TW-23 (monthly basis).
11-22-99	Highlander performed 4th quarter monitoring, sampling ten (10) monitor wells, and two extraction wells (#1 and #2) at the Site.
12-22-99	Surveyed current monitor wells and extraction wells.



TAKEN FROM U.S.G.S.
BUCKEYE & LOVINGTON SW, NM
7.5' QUADRANGLES

N

LEGEND

☐ SITE LOCATION

SCALE: 1"=2,000'

FIGURE NO. 1

LEA COUNTY, NEW MEXICO

TEXACO EXPLORATION AND PRODUCTION, INC.

TOPOGRAPHIC MAP

HIGHLANDER ENVIRONMENTAL
MIDLAND, TEXAS

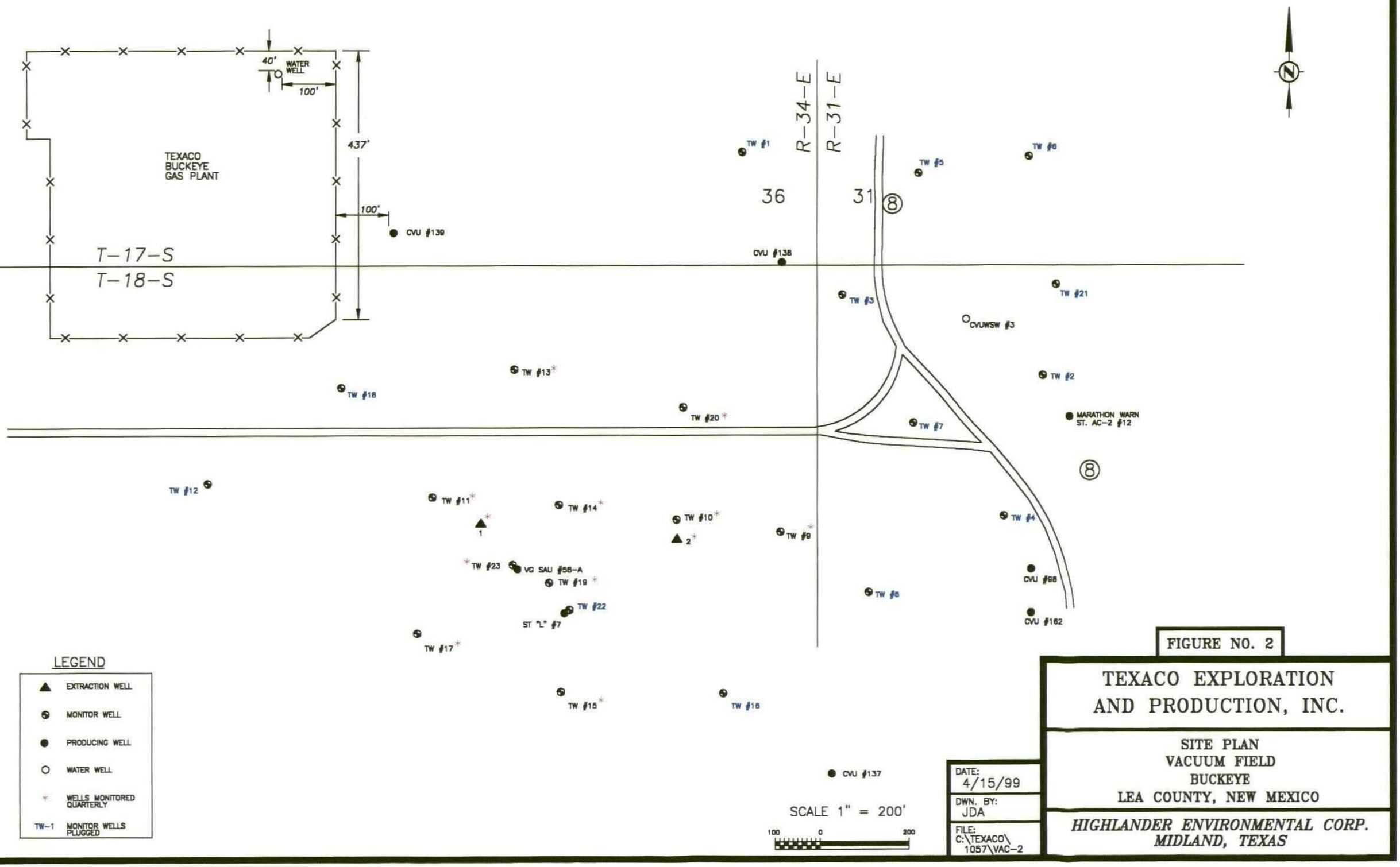


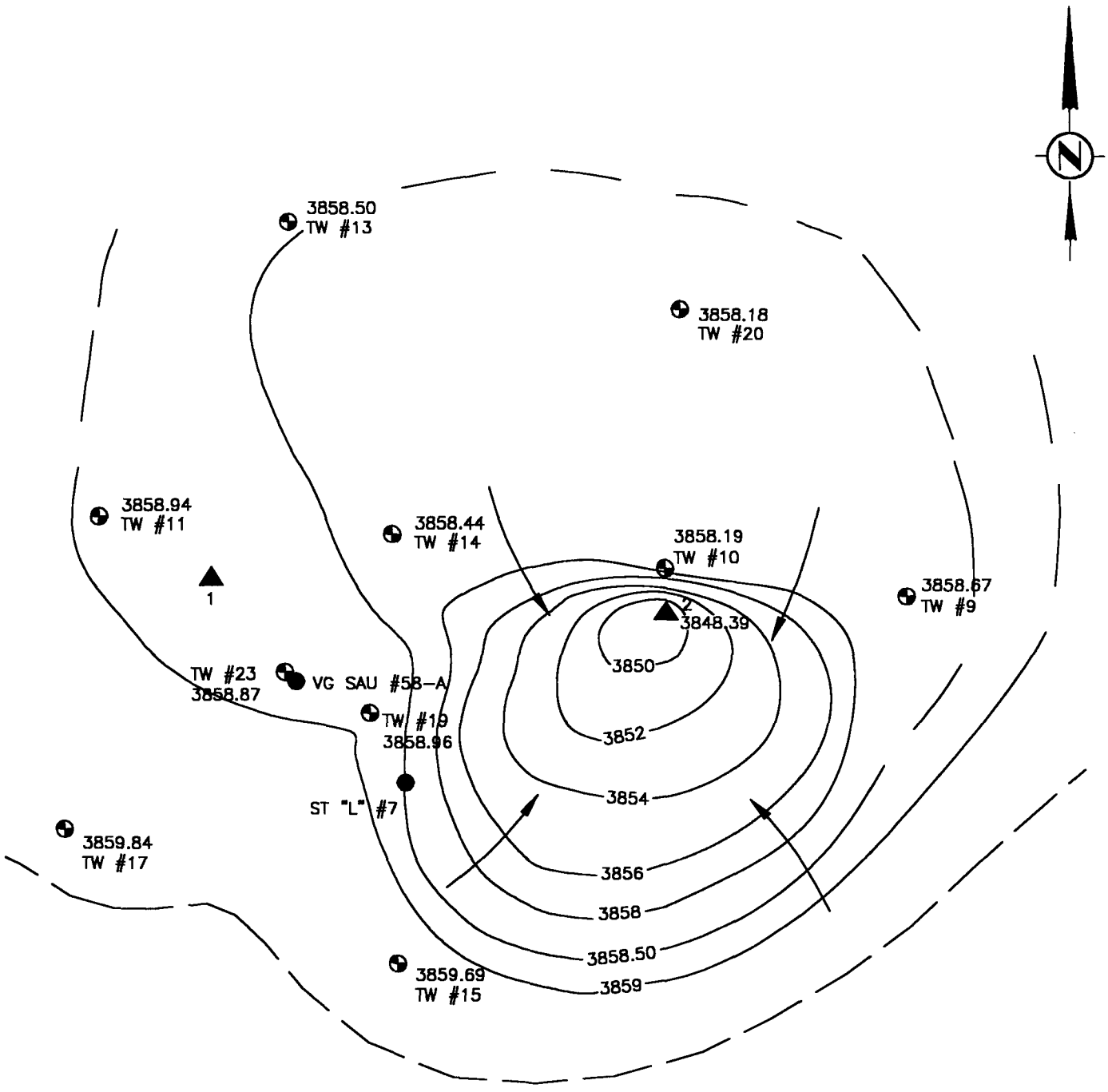
FIGURE NO. 2

TEXACO EXPLORATION AND PRODUCTION, INC.

SITE PLAN
VACUUM FIELD
BUCKEYE
LEA COUNTY, NEW MEXICO

DATE: 4/15/99
DWN. BY: JDA
FILE: C:\TEXACO\1057\VAC-2

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS



SCALE 1" = 200'

LEGEND

- EXTRACTION WELL
- MONITOR WELL
- PRODUCING WELL
- DIRECTIONS OF GROUNDWATER FLOW

NOTE: 12/22/99, MONITORING DATE (WATER LEVEL DATA)

FIGURE NO. 3

TEXACO EXPLORATION AND PRODUCTION, INC.

WATER TABLE MAP
VACUUM FIELD
BUCKEYE
LEA COUNTY, NEW MEXICO

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

DATE:	01/04/00
DWN. BY:	JDA
FILE:	C:\TEXACO\1057\G_W_TABLE_2A

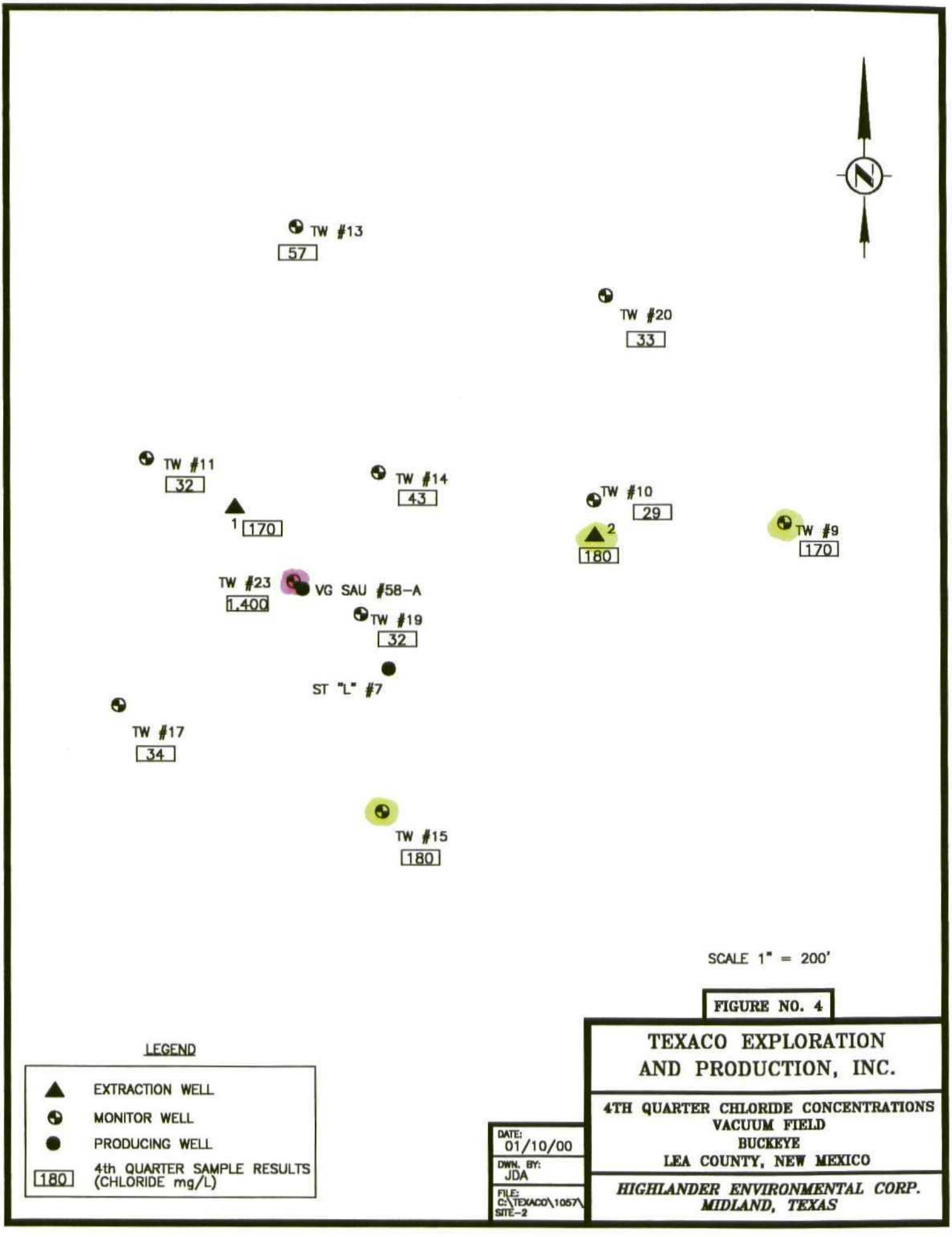
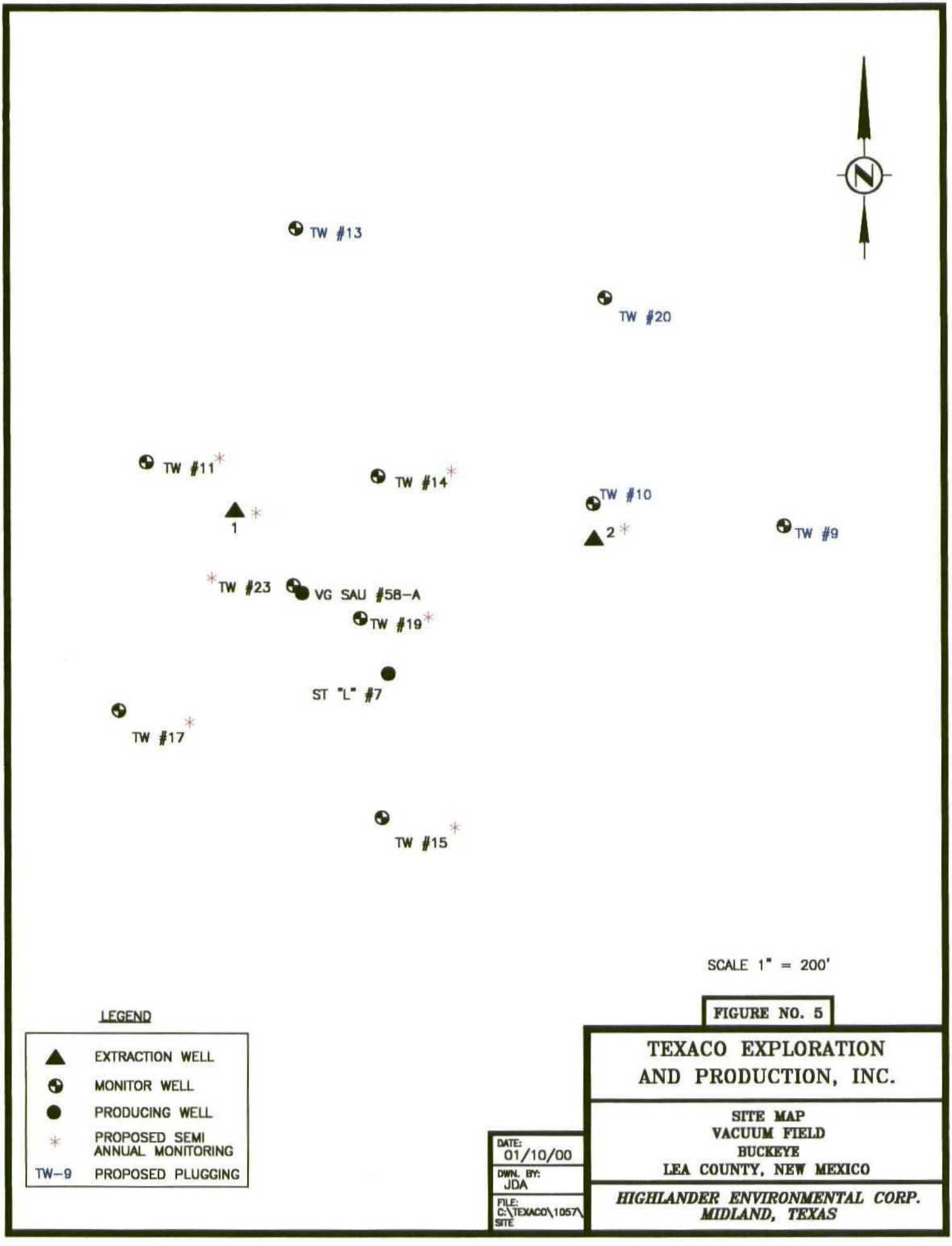


FIGURE NO. 4

TEXACO EXPLORATION AND PRODUCTION, INC.

4TH QUARTER CHLORIDE CONCENTRATIONS
VACUUM FIELD
BUCKEYE
LEA COUNTY, NEW MEXICO

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS



SCALE 1" = 200'

LEGEND

▲	EXTRACTION WELL
⊕	MONITOR WELL
●	PRODUCING WELL
✳	PROPOSED SEMI ANNUAL MONITORING
TW-9	PROPOSED PLUGGING

FIGURE NO. 5

TEXACO EXPLORATION AND PRODUCTION, INC.

SITE MAP
VACUUM FIELD
BUCKEYE
LEA COUNTY, NEW MEXICO

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

DATE: 01/10/00
DWN. BY: JDA
FILE: C:\TEXACO\1057\SITE

Table 1
Texaco Exploration and Production, Inc.
Vacuum Field Unit, Buckeye
Lea County, New Mexico

Monitor wells Plugged	Monitor wells Monitored Quarterly
Well ID	**Well ID**
TW-1	TW-9
TW- 2	TW-10
TW- 3	TW-11
TW- 4	TW-13
TW- 5	TW-14
TW- 6	TW-15
TW- 7	TW-17
TW- 8	TW-19
TW- 12	TW-20
TW-16	TW-23
TW-18	Extraction well #1
TW-21	Extraction well #2
TW- 22	

Table 2
Texaco Exploration and Production, Inc.
Groundwater Water Level Data
Buckeye, Vacuum Field Unit
Lea County, New Mexico

Monitoring Date	TW-9	TW-10	TW-11	TW-13	TW-14	TW-15	TW-17	TW-19	TW-20	TW-23	EW-1	EW-2
2/22/99	-	-	-	-	-	-	-	-	-	-	-	-
05/26/99	129.97	129.49	130.29	130.20	128.19	124.04	125.26	124.69	130.25	125.82	-	-
08/19/99	130.15	129.74	130.50	130.44	128.46	124.23	125.46	124.90	130.42	126	-	-
11/22/99	129.72	129.25	130.7	129.7	128.03	123.94	125.3	124.55	129.99	125.66	-	-
*12/22/99	129.93	129.58	130.37	130.2	128.23	124.06	125.38	124.77	130.21	125.89	-	**138.6

Measurements collected top of casing

1st Quarter measurement were not collected due to equipment problems

* Collected water levels and groundwater sampling was not performed.

** Pumping level

Elevation of Top of Casing (ft)	TW-9	TW-10	TW-11	TW-13	TW-14	TW-15	TW-17	TW-19	TW-20	TW-23	EW-1	EW-2
	3988.60	3987.77	3989.14	3988.70	3986.67	3984.07	3985.22	3983.73	3988.39	3984.76	3986.90	3986.99
Elevation of Top of Groundwater (ft)	3858.67	3858.19	3858.94	3858.50	3858.44	3859.69	3859.84	3858.96	3858.18	3858.87	-	3848.39

Table 3

Texaco Exploration and Production, Inc.

Quarterly Groundwater Sample Results

Buckeye, Vacuum Field Unit

Lea County, New Mexico

Sample ID	1st Quarter 2/22/99	2nd Quarter 5/26/99	3rd Quarter 8/19/99	Monthly Monitoring 9/21/99	Monthly Monitoring 10/25/99	4th Quarter 11/22/99
	Chloride (mg/l)					
TW-9	370	290	200	-	-	170
TW-10	36	23	44	-	-	29
TW-11	40	26	42	-	-	32
TW-13	83	45	72	-	-	57
TW-14	42	64	45	-	-	43
TW-15	120	120	170	-	-	180
TW-17	29	23	36	-	-	34
TW-19	27	22	36	-	-	32
TW-20	31	26	20	-	-	33
TW-23	1,100	1,400	2,400	1,000	1,300	1,400
Ex. Well #1	190	160	190	-	-	170
Ex. Well #2	200	150	200	-	-	180

Not Sampled (-)

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

June 14, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. Z-274-520-672

Mr. Rodney Bailey
Texaco E&P Inc.
205 E. Bender
Hobbs, New Mexico 88240

RE: VACUUM FIELD UNIT MONITOR WELL PLUGGING
LEA COUNTY, NEW MEXICO

Dear Mr. Bailey:

The New Mexico Oil Conservation Division (OCD) has reviewed Texaco Exploration & Production Inc.'s (TEPI) April 27, 1999 "WORK PLAN FOR PLUGGING OF MONITOR WELLS, TEXACO EXPLORATION AND PRODUCTION INC., VACUUM FIELD UNIT, BUCKEYE, LEA COUNTY, NEW MEXICO" which was submitted on behalf of TEPI by their consultant Highlander Environmental Corp. This document contains a work plan for plugging 13 monitor wells related to TEPI's monitoring of ground water at the Vacuum Field Unit site south of Buckeye, New Mexico.

The above referenced plugging work plan is approved on the condition that documentation of the actual plugging actions conducted at each monitor well be included in the next annual report on ground water sampling due on February 2, 2000. Please be advised that OCD approval does not limit TEPI to the proposed work plan should the plan fail to adequately plug the monitor wells. In addition, OCD approval does not relieve TEPI of responsibility for compliance with any other federal, state or local laws and regulations.

If you have any questions, please contact me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Chris Williams, OCD Hobbs District Office
Ike Tavarez, Highlander Environmental Corp.

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

January 29, 1999

CERTIFIED MAIL
RETURN RECEIPT NO. Z-274-520-606

Mr. Rodney Bailey
Texaco E&P Inc.
205 E. Bender
Hobbs, New Mexico 88240

RE: VACUUM FIELD UNIT
LEA COUNTY, NEW MEXICO

Dear Mr. Bailey:

The New Mexico Oil Conservation Division (OCD) has reviewed Texaco Exploration & Production Inc.'s (TEPI) October 14, 1998 "GROUNDWATER MONITORING REPORT, TEXACO EXPLORATION AND PRODUCTION INC., VACUUM FIELD UNIT, BUCKEYE, LEA COUNTY, NEW MEXICO" which was submitted on behalf of TEPI by their consultant Highlander Environmental Corp. This document contains the results of TEPI's monitoring of contaminated ground water at the Vacuum Field Unit site south of Buckeye, New Mexico. The document also contains TEPI's proposal for plugging and abandonment of a number of the monitoring wells and a work plan for additional ground water monitoring of the remaining monitor wells.

The above referenced plugging and ground water monitoring proposal is approved with the following conditions:

1. Monitor wells TW-10, TW-13 and TW-20 will not be plugged and will be included in the ground water monitoring plan.

2. Prior to conducting any plugging activities, TEPI will submit to the OCD for approval a monitor well plugging and abandonment work plan.

3. All ground water quality samples will be obtained and analyzed using EPA approved methods and procedures including use of appropriate quality assurance/quality control (QA/QC) methods.

SCARBOROUGH DRILLING, INC.

122 North 24th St.
LAMESA, TEXAS 79331
806/872-3285
FAX 806/872-6381

January 06, 2000

Ken Fresquez
State Engineer Office
District II
1900 West Second Street
Roswell, New Mexico 88201

Re: Plugging of Monitor wells, Texaco Exploration and Production Inc, Vacuum Field Unit, Buckeye, Lea County, New Mexico.

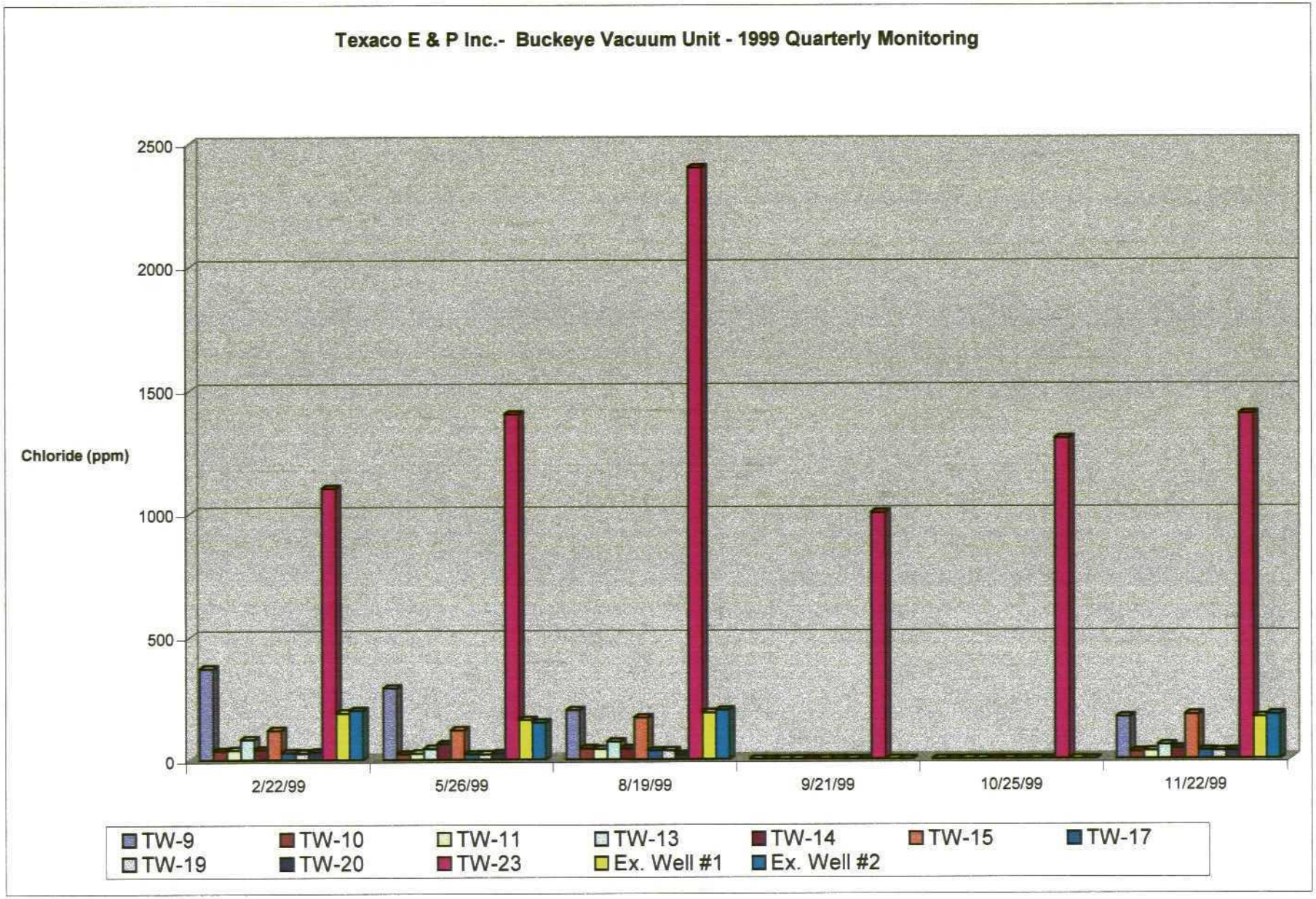
7-22-99	TW#18	225'	15	cement	Section 1,Township 18S,Range 34E
	22	215'	25	"	ditto
7-23	12	230'	18	"	ditto
	16	233'	16	"	ditto
	1	200'	10	"	Section 36,Township 17S,Range 34E
	3	220'	10	"	Section 6, Township 18S,Range 31E
	7	230'	55	"	ditto
11-17	8	236'	30	"	ditto
	4	232'	18	"	ditto
	2	238'	12	"	ditto
	5	234'	15	"	Section 31,Township 18S,Range 31E
11-18	6	236'	18	"	ditto
	21	233'	10	"	Section 6,Township 18S,Range 31E

Cement/bentonite grout was pumped through tremie line from bottom of well to one foot below ground level.which is where 3" pvc casing was cut off.

This plugging was done by Lane Scarborough with Scarborough Drilling,Inc., WD-1188.

Enclosed is copy of site plan map for your convenience.

cc: Highlander Environmental Corp.
Midland, TX


Texaco E & P Inc.- Buckeye Vacuum Unit - 1999 Quarterly Monitoring
Chloride (ppm)
2500
2000
1500
1000
500
0
2/22/99
5/26/99
8/19/99
9/21/99
10/25/99
11/22/99
TW-9
TW-10
TW-11
TW-13
TW-14
TW-15
TW-17
TW-19
TW-20
TW-23
Ex. Well #1
Ex. Well #2

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
HIGHLANDER ENVIRONMENTAL CORP.
Attention: Ike Taverez
1910 N. Big Spring St.
Midland, TX 79705

February 26, 1999
Receiving Date: 02/24/99
Sample Type: Water
Project No: N/A
Project Location: N/A

Prep Date:
Analysis Date: 02/26/99
Sampling Date: 02/22/9
Sample Condition: Intact & Cool
Sample Received by: VW
Project Name: Texaco-Vacuum Field
Lea County, NM

TA#	FIELD CODE	Cl (mg/L)
T119480	TW-9	370
T119481	TW-10	36
T119482	TW-11	40
T119483	TW-13	83
T119484	TW-14	42
T119485	TW-20	31
T119486	TW-23	1,100
T119487	Extraction Well #1	190
T119488	Extraction Well #2	200
QC		11.77
REPORTING LIMIT		0.500
RPD		0
% Extraction Accuracy		90
% Instrument Accuracy		94

METHODS: EPA 300.0
CHEMIST: JS
Cl CV : 12.5 mg/L Cl
Cl SPIKE : 125 mg/L Cl

Director, Dr. Blair Leftwich

2-26-99
DATE

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
HIGHLANDER ENVIRONMENTAL SERVICES
Attention: Ike Tavarez
1910 N. Big Spring St.
Midland, TX 79705

February 22, 1999
Receiving Date: 02/20/99
Sample Type: Water
Project No: 1057
Project Name: Texaco/Buckeye Vacuum Unit

Sampling Date: 02/18/99
Sample Condition: Intact & Cool
Sample Received by: VW
Client Name: Texaco E & P Inc.
Project Loc.: Lea County, NM

TA#	FIELD CODE	CHLORIDE (mg/L)
T119293	TW-15	120
T119294	TW-19	27
T119295	TW-17	29
ICV		499
CCV		497
REPORTING LIMIT		2.0
RPD		0
% Extraction Accuracy		110
% Instrument Accuracy		100
PREP DATE		02/22/99
ANALYSIS DATE		02/22/99

METHODS: EPA SM 4500 Cl-B
CHEMIST: JS
CHLORIDE SPIKE: 1000 mg/L CHLORIDE
CHLORIDE CV: 500 mg/L CHLORIDE

Director, Dr. Blair Leftwich

2-22-99
DATE

332

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

PAGE: 1 OF: 1

CLIENT NAME: Texaco E & P. Inc. SITE MANAGER: Ike Tavarez

PROJECT NO.: 1057 PROJECT NAME: Texaco / Buckeye Vacuum Unit. Lea County NM.

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chlorides
119293	2-18-99		W		1	TW-15	1					X																		X
94	2-18-99		W		1	TW-19	1					X																		X
95	2-18-99		W		1	TW-17	1					X																		X

RELINQUISHED BY: (Signature) Date: 2/19/99 Time: 3:00 PM
RECEIVED BY: (Signature) Helen Shelton Date: 2/19/99 Time: 3:00 PM

RELINQUISHED BY: (Signature) Helen Shelton Date: 2/19/99 Time: 5:00 PM
RECEIVED BY: (Signature) Date: Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Sign) Ike Tavarez Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED (BUS) UPS AIRBILL #: OTHER:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) B. Adler
DATE: 2-20-99 TIME: 1040

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by: ASAP please
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: (W-Water) S-Soil A-Air SL-Sludge SD-Solid O-Other

REMARKS: Greyhound GLI 159 384 4835 (40) 2/22/99 if at all

ANALYSIS REQUEST (Circle or Specify Method No.)

Please Fill out all copies. Laboratory retains yellow copy. Return original copy to Highlander Environmental Corp. Project Manager retains pink copy. Accounting receives Gold copy upon receipt

119480-88

379

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

PAGE: 1 OF: 1

CLIENT NAME: Texaco E & P Inc. SITE MANAGER: Ike Tavarez

PROJECT NO.: PROJECT NAME: Texaco Buckeye - Vacuum Field. Lea County, NM.

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride
119480	2/22/99					TW-9	1					/																	X	X
81						TW-10	1					/																	X	X
82						TW-11	1					/																	X	X
83						TW-13	1					/																	X	X
84						TW-14	1					/																	X	X
85						TW-20	1					/																	X	X
86						TW-23	1					/																	X	X
87						Extraction well #1	1					/																	X	X
88	✓					Extraction well #2	1					/																	X	X

RELINQUISHED BY: (Signature) Date: 2/23/99 Time: 4:35PM
RECEIVED BY: (Signature) Helen Shelton Date: 2/23/99 Time: 4:35PM

RELINQUISHED BY: (Signature) Helen Shelton Date: 2/23/99 Time: 6:00PM
RECEIVED BY: (Signature) Date: Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Sign) Ike Tavarez / Jim A. Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED BUS UPS AIRBILL # 159384461 5 OTHER:

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Vicki Windham
DATE: 2-24-99 TIME: 9:00 am

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by: mail MARCH 1
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: (W-Water) S-Soil A-Air SL-Sludge SD-Solid O-Other

REMARKS: TAT

2/26

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Ike Tavarez
Highlander Environmental Services
1910 N. Big Spirng St.
Midland, TX 79705

Report Date: 6/2/99

Project Number: 1131
Project Name: Texaco Buckeye Plant Water Well
Project Location: N/A

Order ID Number: 99052807

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
125621	TW-19	Water	5/25/99	12:42	5/28/99
125622	TW-17	Water	5/25/99	14:06	5/28/99
125623	TW-20	Water	5/25/99	15:14	5/28/99
125624	TW-11	Water	5/25/99	16:25	5/28/99
125625	TW-14	Water	5/25/99	17:25	5/28/99
125626	Ext. #2	Water	5/25/99	15:19	5/28/99
125627	Ext. #1	Water	5/25/99	15:25	5/28/99
125628	TW-10	Water	5/26/99	8:53	5/28/99
125629	TW-13	Water	5/26/99	10:03	5/28/99
125630	TW-15	Water	5/26/99	11:10	5/28/99
125631	TW-9	Water	5/26/99	12:12	5/28/99
125632	TW-23	Water	5/26/99	13:22	5/28/99

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 125621
Description: TW-19

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		22	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01177	0.2

Sample Number: 125622
Description: TW-17

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL	*	23	mg/L	1	E 300.0	5/28/99	5/28/99	JS	PB00922	QC01156	0.2

* CL - Chloride re-ran on IC060199.sch

Sample Number: 125623
Description: TW-20

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		26	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01178	0.2

Sample Number: 125624
Description: TW-11

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL	*	26	mg/L	1	E 300.0	5/28/99	5/28/99	JS	PB00922	QC01157	0.2

* CL - Chloride re-ran on IC060199.sch

Sample Number: 125625
Description: TW-14

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		64	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01179	0.2

Sample Number: 125626
Description: Ext. #2

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		150	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01179	0.2

Sample Number: 125627
Description: Ext. #1

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		160	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01178	0.2

Sample Number: 125628
Description: TW-10

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		23	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01179	0.2

Sample Number: 125629
Description: TW-13

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		45	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01178	0.2

Sample Number: 125630
Description: TW-15

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		120	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01178	0.2

Sample Number: 125631
Description: TW-9

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		290	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01179	0.2

Sample Number: 125632
Description: TW-23

Param	Flag	Result	Units	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL		1400	mg/L	1	E 300.0	6/1/99	6/1/99	JS	PB00943	QC01179	0.2

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Units	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL		<0.5	mg/L	0.5	6/1/99	PB00943	QC01177
CL		<0.5	mg/L	0.5	6/1/99	PB00943	QC01178
CL		<0.5	mg/L	0.5	6/1/99	PB00943	QC01179

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Units	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL	mg/L	22	1	62.5	83.39	98		80 - 120	0 - 20	QC01177
MSD	CL	mg/L	22	1	62.5	82.92	97	1	80 - 120	0 - 20	QC01177

Standard	Param	Units	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL	mg/L	26	1	62.5	85.64	95		80 - 120	0 - 20	QC01178
MSD	CL	mg/L	26	1	62.5	85.36	95	0	80 - 120	0 - 20	QC01178

Standard	Param	Units	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL	mg/L	23	1	62.5	80.86	93		80 - 120	0 - 20	QC01179
MSD	CL	mg/L	23	1	62.5	80.63	92	0	80 - 120	0 - 20	QC01179

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	Units	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL		12.5	mg/L	11.79	94	80 - 120	6/1/99	QC01177
CCV (1)	CL		12.5	mg/L	12.60	101	80 - 120	6/1/99	QC01177

Standard	Param	Flag	CCVs TRUE Conc.	Units	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL		12.5	mg/L	11.87	95	80 - 120	6/1/99	QC01178
CCV (1)	CL		12.5	mg/L	12.14	97	80 - 120	6/1/99	QC01178

Standard	Param	Flag	CCVs TRUE Conc.	Units	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL		12.5	mg/L	12.14	97	80 - 120	6/1/99	QC01179
CCV (1)	CL		12.5	mg/L	11.87	95	80 - 120	6/1/99	QC01179

125621-32

9905 2807

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

PAGE: 1 OF: 2

CLIENT NAME: Texaco

SITE MANAGER: Ike Tavarez

PROJECT NO.: 1131

PROJECT NAME: Texaco - Buckeye

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	ECI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
125621	5/25/99	12:42	W			TW-19	1				X	X														X			
22	5/25/99	2:06	W			TW-17	1				X	X														X			
23	5/25/99	3:14	W			TW-20	1				X	X														X			
24	5/25/99	4:25	W			TW-11	1				X	X														X			
25	5/25/99	5:25	W			TW-14	1				X	X														X			
26	5/25/99	3:19	W			Ext. #2	1				X	X														X			
27	5/25/99	3:25	W			Ext. #1	1				X	X														X			
28	5/26/99	8:53	W			TW-10	1				X	X														X			
29	5/26/99	10:03	W			TW-13	1				X	X														X			
30	5/26/99	11:10	W			TW-15	1				X	X														X			

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Lynn Ward Date: 5-27-99 Time: 4:20

RELINQUISHED BY: (Signature) Helen Shelton Date: 5-27-99 Time: 6:15 PM

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Helen Shelton Date: 5-27-99 Time: 4:30PM

RECEIVED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Sign) Lynn Ward Date: 5-26/5-27 Time: 4:28

SAMPLE SHIPPED BY: (Circle) FEDEX BUS UPS Greyhound AIRBILL #: HAND DELIVERED OTHER:

RECEIVING LABORATORY: Trace Analysis
ADDRESS:
CITY: Lubbock STATE: TX ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Vicki Wrather
DATE: 5-28-99 TIME: 10:00 am

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by: 6/3/99

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: (W-Water) A-Air SD-Solid S-Soil SL-Sludge O-Other

REMARKS:

Please Fill out all copies – Laboratory retains yellow copy – Return original copy to Highlander Enviromental Corp. – Project Manager retains pink copy – Accounting receives Gold copy.

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

CLIENT NAME: Texaco | SITE MANAGER: Ike Tavarez

PROJECT NO.: 1131 | PROJECT NAME: Texaco - Buckeye

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	HCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
125631	5/26/99	12:12	W			TW-9	1				X	X														X			
32	5/26/99	1:22	W			TW-23	1				X	X														X			

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Lynn C Ward | Date: 5-27-99 Time: 4:28 | RECEIVED BY: (Signature) Helen Shelton | Date: 5-27-99 Time: 4:30PM | SAMPLED BY: (Print & Sign) Cynthia Lynn Ward | Date: 5-26/5-27 Time:

RELINQUISHED BY: (Signature) Helen Shelton | Date: 5/27/99 Time: 6:15 PM | RECEIVED BY: (Signature) | Date: Time: | SAMPLE SHIPPED BY: (Circle) FEDEX HUS UPS HAND DELIVERED | AIRBILL # Greyhound | OTHER:

RELINQUISHED BY: (Signature) | Date: Time: | RECEIVED BY: (Signature) | Date: Time:

RECEIVING LABORATORY: Trace Analysis | RECEIVED BY: (Signature) Vicki Wrather

ADDRESS: | CITY: Lubbock | STATE: TX | ZIP: | DATE: 5-28-99 | TIME: 10:00 AM

CONTACT: | PHONE:

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by: 6/3/99

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: (W-Water) S-Soil A-Air SL-Sludge SD-Solid O-Other

REMARKS:

Please Fill out all copies – Laboratory retains yellow copy – Return original copy to Highlander Enviromental Corp. – Project Manager retains pink copy – Accounting receives Gold copy.

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Ike Tavarez
Highlander Environmental Services
1910 N. Big Spirng St.
Midland, TX 79705

Report Date: 8/26/99

Project Number: 1057
Project Name: Texaco/Texaco-Vacuum Field Bukeye
Project Location: Lea County,New Mexico

Order ID Number: 99082109

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
130443	TW-9	Water	8/19/99	-	8/21/99
130444	TW-10	Water	8/19/99	-	8/21/99
130445	TW-11	Water	8/19/99	-	8/21/99
130446	TW-13	Water	8/19/99	-	8/21/99
130447	TW-14	Water	8/19/99	-	8/21/99
130448	TW-15	Water	8/19/99	-	8/21/99
130449	TW-17	Water	8/19/99	-	8/21/99
130450	TW-19	Water	8/19/99	-	8/21/99
130451	TW-20	Water	8/19/99	-	8/21/99
130452	TW-23	Water	8/19/99	-	8/21/99
130453	Extraction Well #1	Water	8/19/99	-	8/21/99
130454	Extraction Well #2	Water	8/19/99	-	8/21/99

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 130443
Description: TW-9

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		200	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02547	0.5

Sample Number: 130444
Description: TW-10

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		44	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02547	0.5

Sample Number: 130445
Description: TW-11

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		42	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02548	0.5

Sample Number: 130446
Description: TW-13

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		72	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02548	0.5

Sample Number: 130447
Description: TW-14

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		45	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02548	0.5

Sample Number: 130448
Description: TW-15

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		170	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02548	0.5

Sample Number: 130449
Description: TW-17

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		36	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02548	0.5

Sample Number: 130450
Description: TW-19

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		36	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02549	0.5

Sample Number: 130451
Description: TW-20

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		47	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02549	0.5

Sample Number: 130452
Description: TW-23

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		2400	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02549	0.5

Sample Number: 130453
Description: Extraction Well #1

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		190	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02549	0.5

Sample Number: 130454
Description: Extraction Well #2

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
CL (mg/L)		200	1	E 300.0	8/24/99	8/24/99	JS	PB02053	QC02549	0.5

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	8/24/99	PB02053	QC02547
CL (mg/L)		<0.5	0.5	8/24/99	PB02053	QC02548
CL (mg/L)		<0.5	0.5	8/24/99	PB02053	QC02549

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	19	1	62.5	78.59	95		80 - 120	0 - 20	QC02547
MSD	CL (mg/L)	19	1	62.5	80.60	99	3	80 - 120	0 - 20	QC02547

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	36	1	62.5	96.56	97		80 - 120	0 - 20	QC02548
MSD	CL (mg/L)	36	1	62.5	96.63	97	0	80 - 120	0 - 20	QC02548

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	36	1	62.5	97.71	99		80 - 120	0 - 20	QC02549
MSD	CL (mg/L)	36	1	62.5	95.01	94	4	80 - 120	0 - 20	QC02549

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	12.48	100	80 - 120	8/24/99	QC02547
CCV (1	CL (mg/L)		12.5	12.29	98	80 - 120	8/24/99	QC02547

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	12.29	98	80 - 120	8/24/99	QC02548
CCV (1	CL (mg/L)		12.5	12.44	100	80 - 120	8/24/99	QC02548

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	12.44	100	80 - 120	8/24/99	QC02549
CCV (1	CL (mg/L)		12.5	12.39	99	80 - 120	8/24/99	QC02549

130443-54

99082109

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

PAGE: 1 OF: 1

CLIENT NAME: Texaco E & P. Inc. SITE MANAGER: M.E. Tavarez

PROJECT NO.: 1057 PROJECT NAME: Texaco / Buckeye - Vacuum Field. Lea County NM.

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	ECI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride
130443	8/19/99		W		X	TW-9	1																							X
130444			W		X	TW-10	1																							X
130445			W		X	TW-11	1																							X
446			W		X	TW-13	1																							X
447			W		X	TW-14	1																							X
448			W		X	TW-15	1																							X
130449			W		X	TW-17	1																							X
130450			W		X	TW-19	1																							X
130451			W		X	TW-20	1																							X
130452			W		X	TW-23	1																							X

RELINQUISHED BY: (Signature) Date: 8/20/99 Time: 3:25 PM
RECEIVED BY: (Signature) Helen Shelton Date: 8/20/99 Time: 3:25 PM

RELINQUISHED BY: (Signature) Helen Shelton Date: 8/20/99 Time: 10:30 PM
RECEIVED BY: (Signature) Date: Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

RECEIVING LABORATORY: Trace.
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

SAMPLED BY: (Print & Sign) Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX HUS UPS HAND DELIVERED AIRBILL #: OTHER:

HIGHLANDER CONTACT PERSON: M.E. Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: (W-Water) A-Air SD-Solid S-Soil SL-Sludge O-Other

REMARKS: GREYHOUND # 159-384-587-0 TEMP: 5°

Please Fill out all copies - Laboratory retains yellow copy - Return original copy to Highlander Environmental Corp. - Project Manager retains pink copy - Accounting receives Gold copy.

9908210

Analysis Request and Chain of Custody Record

PAGE: 2 OF: 2

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

CLIENT NAME: Texaco E&P SITE MANAGER: Ike Tavarez

PROJECT NO.: 1057 PROJECT NAME: Texaco / Buckeye - Vacuum Field

Lea County

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
130453 130458	8/19/99		W		X	extraction well #1	1					
130454 130459	8/19/99		W		X	extraction well #2	1					

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8020/602
MTBE 8020/602
TPH 418.1 8015 MOD. TX1005
PAH 8270
RCRA Metals Ag As Ba Cd Cr Pb Hg Se
TCLP Metals Ag As Ba Cd Cr Pd Hg Se
TCLP Volatiles
TCLP Semi Volatiles
RCI
GC/MS Vol. 8240/8260/624
GC/MS Semi. Vol. 8270/625
PCB's 8080/608
Pest. 608/608
BOD, TSS, pH, TDS, Chloride
Gamma Spec.
Alpha Beta (Air)
PLM (Asbestos)
Hold

RELINQUISHED BY: (Signature)	Date: 8/20/99 Time: 3:25 PM	RECEIVED BY: (Signature) Helen Ketton	Date: 8/20/99 Time: 3:25 PM
RELINQUISHED BY: (Signature) Helen Ketton	Date: 8/20/99 Time: 6:30 PM	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RECEIVING LABORATORY: Trace		RECEIVED BY: (Signature)	
ADDRESS:			
CITY: STATE: ZIP:		DATE: TIME:	
CONTACT: PHONE:			

SAMPLED BY: (Print & Sign) Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX (BUS) UPS HAND DELIVERED AIRBILL #: OTHER:

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: (W-Water) A-Air SD-Solid S-Soil SL-Sludge O-Other

REMARKS: GREYHOUND # 159-384-587-0 Temp: 5°

Please Fill out all copies – Laboratory retains yellow copy – Return original copy to Highlander Environmental Corp. – Project Manager retains pink copy – Accounting receives Gold copy.

JM Models - LLC

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
HIGHLANDER ENVIRONMENTAL
Attention: Ike Tavarez
1910 N. Big Spring St.
Midland, TX 79705

September 27, 1999
Receiving Date: 9/23/99
Sample Type: Water
Project No: 1057
Project Location: N/A

Project Name: Buckeye
Sampling Date: 9/21/99
Sample Condition: Intact & Cool
Sample Received by: VW

TA#	Field Code	CHLORIDE (mg/L)
T132188	TW-23	1,000
ICV		11.29
CCV		11.24
Reporting Limit		0.5
RPD		0
% Extraction Accuracy		88
% Instrument Accuracy		90
Prep Date:		9/24/99
Analysis Date:		9/24/99

CHEMIST: JS
METHODS: 300.0

CHLORIDE SPIKE CONC.: 625 mg/L CHLORIDE
CHLORIDE CV CONC.: 12.5 mg/L CHLORIDE

Director, Dr. Blair Leftwich

09/27/99
Date

TRACE ANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

ANALYTICAL RESULTS FOR
HIGHLANDER ENVIRONMENTAL
Attention: Ike Tavarez
1910 N. Big Spring St.
Midland, TX 79705

September 27, 1999
Receiving Date: 9/23/99
Sample Type: Water
Project No: 1057
Project Location: N/A

Project Name: Buckeye
Sampling Date: 9/21/99
Sample Condition: Intact & Cool
Sample Received by: VW

TA#	Field Code	CHLORIDE (mg/L)
T132188	TW-23	1,000
ICV		11.29
CCV		11.24
Reporting Limit		0.5
RPD		0
% Extraction Accuracy		88
% Instrument Accuracy		90
Prep Date:		9/24/99
Analysis Date:		9/24/99

CHEMIST: JS
METHODS: 300.0

CHLORIDE SPIKE CONC.: 625 mg/L CHLORIDE
CHLORIDE CV CONC.: 12.5 mg/L CHLORIDE

Director, Dr. Blair Leftwich

09/27/99
Date

132188

99092307

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

PAGE: 1 OF: 1

CLIENT NAME: Texaco

SITE MANAGER: Ike Tavarez

PROJECT NO.: 1057

PROJECT NAME: Buckeye

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8030/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GCMS Vol. 8240/8260/624	GCMS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
132188	9/21/99	1217	W			TW-23	1				X															√			

RELINQUISHED BY: (Signature) Lynn C Wood — Date: 9/22/99 Time: 4:50PM

RECEIVED BY: (Signature) Helen Shelton — Date: 9/22/99 Time: 4:50PM

SAMPLED BY: (Print & Sign) Lynn Wood Shelton — Date: 9/21/99 Time:

RELINQUISHED BY: (Signature) Helen Shelton — Date: 9/22/99 Time: 6:30PM

RECEIVED BY: (Signature) — Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX HAND DELIVERED BUS UPS — AIRBILL #: OTHER:

RELINQUISHED BY: (Signature) — Date: Time:

RECEIVED BY: (Signature) — Date: Time:

RECEIVING LABORATORY: Trace Analysis
ADDRESS:
CITY: Lubbock STATE: TX ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Vicki Wrabon
DATE: 9-23-99 TIME: 9:00am

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by: TUES - SEPT. 28 please

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: (W-Water) S-Soil A-Air SL-Sludge SD-Solid O-Other

REMARKS:

9/21/99

Please Fill out all copies – Laboratory retains yellow copy – Return original copy to Highlander Enviromental Corp. – Project Manager retains pink copy – Accounting receives Gold copy.

TRACEANALYSIS, INC.

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4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Ike Tavarez
Highlander Environmental Services
1910 N. Big Spring St.
Midland, TX 79705

Report Date: 10/29/99

Project Number: 1057
Project Name: Texaco/Texaco-Vacuum Field Bukeye
Project Location: Lea County,New Mexico

Order ID Number: 99102806

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
134323	TW-23	Water	10/25/99	-	10/28/99

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 2 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 134323
Description: TW-23

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		1300	1	E 300.0	10/28/99	10/28/99	JS	PB02885	QC03684	0.5

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	10/28/99	PB02885	QC03684

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	170	1	125	288.27	95		80 - 120	0 - 20	QC03684
MSD	CL (mg/L)	170	1	125	287.17	94	1	80 - 120	0 - 20	QC03684

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.56	92	80 - 120	10/28/99	QC03684
CCV (1	CL (mg/L)		12.5	11.64	93	80 - 120	10/28/99	QC03684

134323 99102806

Analysis Request and Chain of Custody Record

PAGE: 1 OF: 1

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705
(915) 682-4559 Fax (915) 682-3946

CLIENT NAME: Texaco E&P. Inc.
SITE MANAGER: Ike Tavarez
PROJECT NO.: 1057
PROJECT NAME: Texaco / Buckeye Vacuum Unit Lea County NM.

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride		
134323	10/25/99				X	TW-23	1				✓																			X		

RELINQUISHED BY: (Signature) [signature]	Date: 10/27/99 Time: 3:20 PM	RECEIVED BY: (Signature) Helen Sletton	Date: 10/27/99 Time: 3:20 PM
RELINQUISHED BY: (Signature) Helen Sletton	Date: 10/27/99 Time: 6:30 PM	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

RECEIVING LABORATORY: Trace Lab.
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature) Vick Windham
DATE: 10-28-99 TIME: 10:00 AM

SAMPLED BY: (Print & Sign) Ike Tavarez / [signature] Date: Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS UPS HAND DELIVERED AIRBILL #: OTHER:

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: (W-Water) S-Soil A-Air SL-Sludge SD-Solid O-Other

REMARKS: 10/29

Please Fill out all copies - Laboratory retains yellow copy - Return original copy to Highlander Enviromental Corp. - Project Manager retains pink copy - Accounting receives Gold copy.

w/ 1 [illegible] - HS [illegible] Greyhound

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
4725 Ripley Avenue, Suite A El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
E-Mail: lab@traceanalysis.com

Analytical and Quality Control Report

Mike Jacobs
Highlander Environmental Services
1910 N. Big Spring St.
Midland, TX 79705

Report Date: 12/6/99

Project Number: N/A
Project Name: Texaco Lea County.
Project Location: N/A

Order ID Number: 99112903

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to TraceAnalysis, Inc. for analysis:

Sample Number	Sample Description	Matrix	Date Taken	Time Taken	Date Received
136341	TW-9	Water	11/22/99	16:38	11/26/99
136342	TW-10	Water	11/23/99	18:02	11/26/99
136343	TW-11	Water	11/23/99	10:07	11/26/99
136344	TW-13	Water	11/23/99	15:00	11/26/99
136345	TW-14	Water	11/22/99	13:27	11/26/99
136346	TW-15	Water	11/22/99	11:12	11/26/99
136347	TW-17	Water	11/23/99	14:35	11/26/99
136348	TW-19	Water	11/22/99	12:12	11/26/99
136349	TW-20	Water	11/22/99	15:03	11/26/99
136350	TW-23	Water	11/23/99	18:55	11/26/99
136351	Extraction Well #1	Water	11/22/99	17:15	11/26/99
136352	Extraction Well #2	Water	11/22/99	17:06	11/26/99

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 4 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Analytical Results Report

Sample Number: 136341
Description: TW-9

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		170	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04300	0.5

Sample Number: 136342
Description: TW-10

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		29	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04300	0.5

Sample Number: 136343
Description: TW-11

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		32	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04300	0.5

Sample Number: 136344
Description: TW-13

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		57	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04300	0.5

Sample Number: 136345
Description: TW-14

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		43	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04300	0.5

Sample Number: 136346
Description: TW-15

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		180	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04300	0.5

Sample Number: 136347
Description: TW-17

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		34	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04300	0.5

Sample Number: 136348
Description: TW-19

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		32	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04301	0.5

Sample Number: 136349
Description: TW-20

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		33	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04301	0.5

Sample Number: 136350
Description: TW-23

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		1400	1	E 300.0	12/1/99	12/1/99	JS	PB03337	QC04331	0.5

Sample Number: 136351
Description: Extraction Well #1

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		170	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04301	0.5

Sample Number: 136352
Description: Extraction Well #2

Param	Flag	Result	Dilution	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch #	QC Batch #	RDL
Ion Chromatography (IC) (mg/L)										
CL		180	1	E 300.0	11/30/99	11/30/99	JS	PB03304	QC04301	0.5

Quality Control Report
Method Blanks

Param	Flag	Blank Result	Reporting Limit	Date Analyzed	Prep Batch #	QC Batch #
CL (mg/L)		<0.5	0.5	11/30/99	PB03304	QC04300
CL (mg/L)		<0.5	0.5	11/30/99	PB03304	QC04301
CL (mg/L)		<0.5	0.5	12/1/99	PB03337	QC04331

Quality Control Report
Matrix Spike and Matrix Duplicate Spike

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	34	1	125	143.06	87		80 - 120	0 - 20	QC04300
MSD	CL (mg/L)	34	1	125	143.51	88	0	80 - 120	0 - 20	QC04300

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	180	1	125	299.90	96		80 - 120	0 - 20	QC04301
MSD	CL (mg/L)	180	1	125	300.08	96	0	80 - 120	0 - 20	QC04301

Standard	Param	Sample Result	Dil.	Spike Amount Added	Matrix Spike Result	% Rec.	RPD	% Rec. Limit	RPD Limit	QC Batch #
MS	CL (mg/L)	49	1	62.5	107.70	94		80 - 120	0 - 20	QC04331
MSD	CL (mg/L)	49	1	62.5	107.95	94	0	80 - 120	0 - 20	QC04331

Quality Control Report
Continuing Calibration Verification Standard

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.56	92	80 - 120	11/30/99	QC04300
CCV (1	CL (mg/L)		12.5	11.55	92	80 - 120	11/30/99	QC04300

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.55	92	80 - 120	11/30/99	QC04301
CCV (1	CL (mg/L)		12.5	11.41	91	80 - 120	11/30/99	QC04301

Standard	Param	Flag	CCVs TRUE Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	QC Batch #
ICV	CL (mg/L)		12.5	11.83	95	80 - 120	12/1/99	QC04331
CCV (1	CL (mg/L)		12.5	11.62	93	80 - 120	12/1/99	QC04331

136341-52

99112903

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

PAGE: 1 OF: 2

CLIENT NAME: TEXACO E&P Inc. SITE MANAGER: Mike Jacobs.

PROJECT NO.: 1057 PROJECT NAME: Texaco / Buckeye-Vacuum Unit. Lea County NM.

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GCMS Vol. 8240/8260/624	GCMS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chlorides	
136341	11/22/99	16:38	W			TW-9	1					✓												1363		41				X	
42	11/23/99	18:00	W			TW-10	1					✓														42				X	
43	11/23/99	10:07	W			TW-11	1					✓														43				X	
44	11/23/99	15:00	W			TW-13	1					✓																		X	
45	11/22/99	13:27	W			TW-14	1					✓																		X	
46	11/22/99	11:12	W			TW-15	1					✓																		X	
47	11/23/99	14:35	W			TW-17	1					✓																		X	
48	11/22/99	12:12	W			TW-19	1					✓																		X	
49	11/22/99	15:03	W			TW-20	1					✓																		X	
50	11/23/99	18:55	W			TW-23	1					✓																		X	

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 11/24/99 Time:
RECEIVED BY: (Signature) Date: 11/24/99 Time: 11:00 Am.
SAMPLED BY: (Print & Sign) Mike Jacobs Jim Arm Date: Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX HUS UPS HAND DELIVERED AIRBILL #: 159384655 OTHER:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
HIGHLANDER CONTACT PERSON: IKE Tavarez Results by:

RECEIVING LABORATORY: Pace Lab. RECEIVED BY: (Signature) Nell Green
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE: DATE: 11-26-99 TIME: 9:30 am
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: W-Water A-Air SD-Solid S-Soil SL-Sludge O-Other

REMARKS: 14°

12-7-99

Please Fill out all copies – Laboratory retains yellow copy – Return original copy to Highlander Enviromental Corp. – Project Manager retains pink copy – Accounting receives Gold copy.

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(915) 682-4559 Fax (915) 682-3946

PAGE: 2 OF: 2

CLIENT NAME: Texaco E&P Dve. SITE MANAGER: Mike Jacobs.

PROJECT NO.: 1057 PROJECT NAME: Texaco | Buckeye-Vacuum Field. Lea County, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8020/602	MTBE 8020/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	BOD, TSS, pH, TDS, Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Chloride	
13635	11/22/99	1715	W			Extraction well #1	1					/																		X	
52	11/22/99	1104	W			Extraction well #2	1					/																		X	

RELINQUISHED BY: (Signature) Date: 11/24/99 Time: _____ RECEIVED BY: (Signature) Date: 11/24/99 Time: 11:45am

RELINQUISHED BY: (Signature) Date: _____ Time: _____ RECEIVED BY: (Signature) Date: _____ Time: _____

RELINQUISHED BY: (Signature) Date: _____ Time: _____ RECEIVED BY: (Signature) Date: _____ Time: _____

RECEIVING LABORATORY: Trace Lab. RECEIVED BY: (Signature) Nell Green

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____

CONTACT: _____ PHONE: _____ DATE: 11-26-99 TIME: 9:30 am

SAMPLED BY: (Print & Sign) Mike Jacobs / Jim Aem. Date: _____ Time: _____

SAMPLE SHIPPED BY: (Circle) FEDEX BUS UPS HAND DELIVERED AIRBILL # 159384655 OTHER: _____

HIGHLANDER CONTACT PERSON: Mike Graves

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: W-Water A-Air SD-Solid S-Soil SL-Sludge O-Other

REMARKS: 14°

Please Fill out all copies – Laboratory retains yellow copy – Return original copy to Highlander Enviromental Corp. – Project Manager retains pink copy – Accounting receives Gold copy.