

3R - 348

REPORTS

DATE:

Feb. 26, 2003



Environmental Project Services
188 County Road 4900
Bloomfield, NM 87413
505-634-4956 Phone
505-327-4577 Fax

February 26, 2003

Mr. Bill Olson
Hydrogeologist
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RECEIVED

MAR 13 2003

ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION

RE: ZACHRY #18E PIT REMEDIATION AND CLOSURE REPORT

Dear Mr. Olson:

Enclosed please find information on remediation and closure activities associated with the unlined surface impoundment located at the Zachry #18E site. Public Service Company of New Mexico (PNM) previously owned the site and initiated closure activities on August 1, 1996. The site later became an asset of Williams upon purchase of Gas Company of New Mexico (GCNM) from PNM. Upon expiration of PNM's retained environmental liabilities associated with the site, Williams agreed to complete necessary closure work. As such, the enclosed documentation reflects activities of both PNM and Williams.

Site History

Excavation of petroleum hydrocarbon-impacted soil beneath the unlined surface impoundment was conducted in two phases. Phase I began on August 26, 1996 with the excavation and landfarming of approximately 363 cubic yards of contaminated soil. Ground water was encountered at a depth of 10-feet and the excavation was terminated at 12-feet. A sample of ground water collected from the excavation contained benzene (693.5 µg/l), toluene (4765.0 µg/l) and total xylenes (4945.3 µg/l) at concentrations in excess of Water Quality Control Commission (WQCC) standards. PNM notified NMOCD of ground water contamination at the site on September 9, 1996.

To evaluate the magnitude and extent of ground water contamination, five monitoring wells were installed on November 19, 1996. Samples were collected from the wells beginning in December 1996 and continuing through September 2002. By December 1997, all the wells had demonstrated four consecutive quarters of BTEX levels below WQCC standards with the exception of well MW-4. Well MW-4 was located downgradient of the former source area and consistently demonstrated elevated BTEX levels. This prompted a second phase of contaminated soil removal.

Phase II began on January 19, 1998 with the excavation and landfarming of an additional 2718 cubic yards of contaminated soil from an approximately 3000 square yard area north of the original remediated area. Well MW-4 was removed during phase II activities. A new well MW-4 was installed in the same location as the original on March 10, 1998. Concentrations of BTEX in MW-4 remained above standards throughout 1998. Sometime in the fourth quarter of 1998, a grader operating on the site destroyed well MW-4. On December 14, 1998 another new well MW-4 was installed approximately 5-feet west of the original location. In addition, a sentinel well, identified as MW-6, was installed downgradient of MW-4. Exhibit A contains the original PNM Pit Remediation and Closure Reports. In addition, excavation maps, field notes and landfarm confirmation sample results are included.

Site Hydrogeology

The Zachry #18E site is located in Unit O, Section 11, Township 28N, Range 10W of San Juan County, New Mexico (Figure 1). The site lies on the east edge of Armenta Canyon. The alluvial sediments consist primarily of light to dark brown, sand grading from fine near the surface to coarse at 5-feet below ground surface. Below 10-feet the material is primarily gray, coarse sand. The maximum depth of investigation was approximately 19-feet below ground surface. Bedrock was not encountered in any of the borings.

Ground water in the unconsolidated sediments is unconfined and the depth to ground water is typically around 8-feet below ground level. Ground water flows to the north-northwest in accordance with the local surface water flow down Armenta Canyon. A potentiometric surface map for the June 15, 2002 monitoring event is included as Figure 2. A hydrograph showing the seasonal variations in water levels is included as Figure 3. The average hydraulic gradient across the site is 0.01. Hydraulic conductivities of the sediments are likely on the order of 10^{-3} to 10^{-1} cm/sec.

Monitoring Results

Concentrations of benzene, toluene, ethylbenzene and xylene (BTEX) were analyzed in water samples collected from December 1996 through September 2002. The initial monitoring network consisted of five wells identified as MW-1 through MW-5. Wells MW-1, MW-2, MW-3 and MW-5 demonstrated four consecutive quarters of BTEX levels below WQCC standards within the first year of monitoring. Sampling of these wells was discontinued in March 1998 and restarted in June 2001.

Prior to Phase II excavation activities, total BTEX levels in well MW-4 were 8940 $\mu\text{g/l}$. These levels dropped to 1196 $\mu\text{g/l}$ immediately following Phase II activities. Although toluene, ethylbenzene and total xylene concentrations in MW-4 dropped below WQCC standards following Phase II activities, benzene remained at levels above the standards. To verify that contamination was not migrating off site beyond well MW-4, a sentinel well (MW-6) was added in December 1998. Concentrations of BTEX in well MW-6 remained below WQCC standards throughout the monitoring period confirming that no off-site migration of contaminants occurred. All monitoring wells have now demonstrated four consecutive quarters of BTEX levels below WQCC standards. Exhibit B contains a table summarizing the ground water analytical results. Copies of laboratory analytical reports not previously submitted are also included.

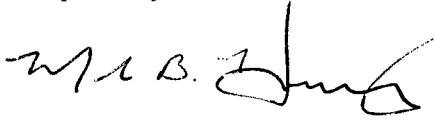
Summary

The unlined surface impoundment at the Zachry #18E site was addressed consistent with OCD Order 7940-C and with the guidelines pertaining to the remediation of unlined surface impoundments. The work included the removal of hydrocarbon-impacted soil and an evaluation of ground water impacted by the historical operation of the impoundment. A network of ground water monitoring wells was installed and ground water analyses showed that a BTEX plume existed in the vicinity north of the former pit location. Natural attenuation of the BTEX compounds along with extensive source removal resulted in contaminant degradation to concentrations less than WQCC standards.

Based on current site conditions, Williams requests approval for closure of the Zachry #18E site. Following receipt of your closure approval we will plug and abandon the monitoring wells in accordance with applicable regulations. Williams appreciates your time in reviewing this site closure request. If you have any questions or require any additional information, please contact me at 505-634-4956 or Jim Struhs, Project Hydrogeologist at 801-558-1918.

February 26, 2003
Mr. Bill Olson, OCD
Page 3

Respectfully,

A handwritten signature in black ink, appearing to read "Mark B. Harvey". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Mark B. Harvey
Project Coordinator

Attachments

c: Mr. Denny Foust, NMOCD, District III
Mr. Bill Liess, BLM, Farmington District Office

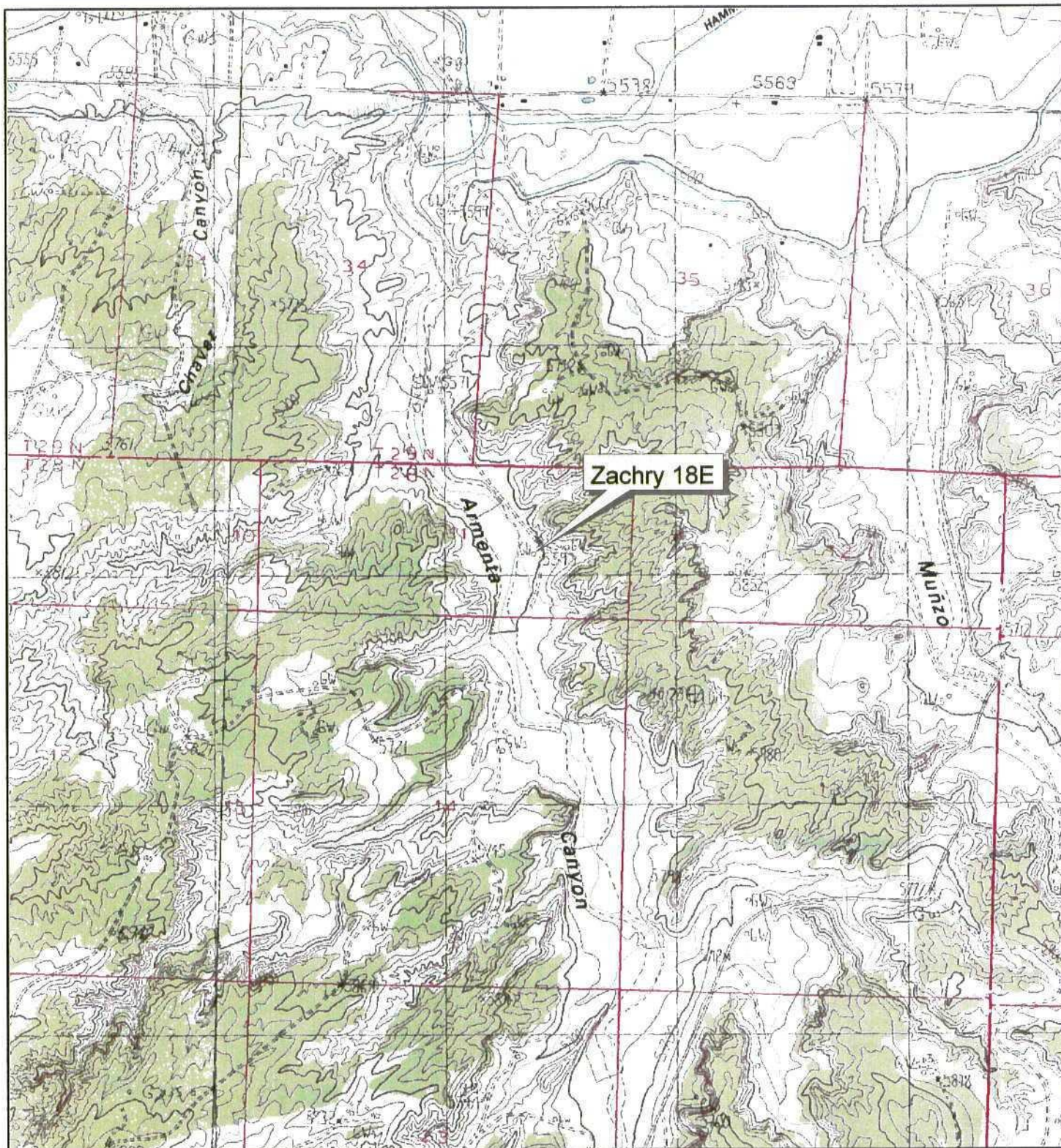


Figure 1. Site Location Map
Zachry 18E
Unit O, Sec. 11, T28N, R10W

1000 0 1000 2000 Feet



**Figure 2. Potentiometric Surface Map
(June 15, 2002)**

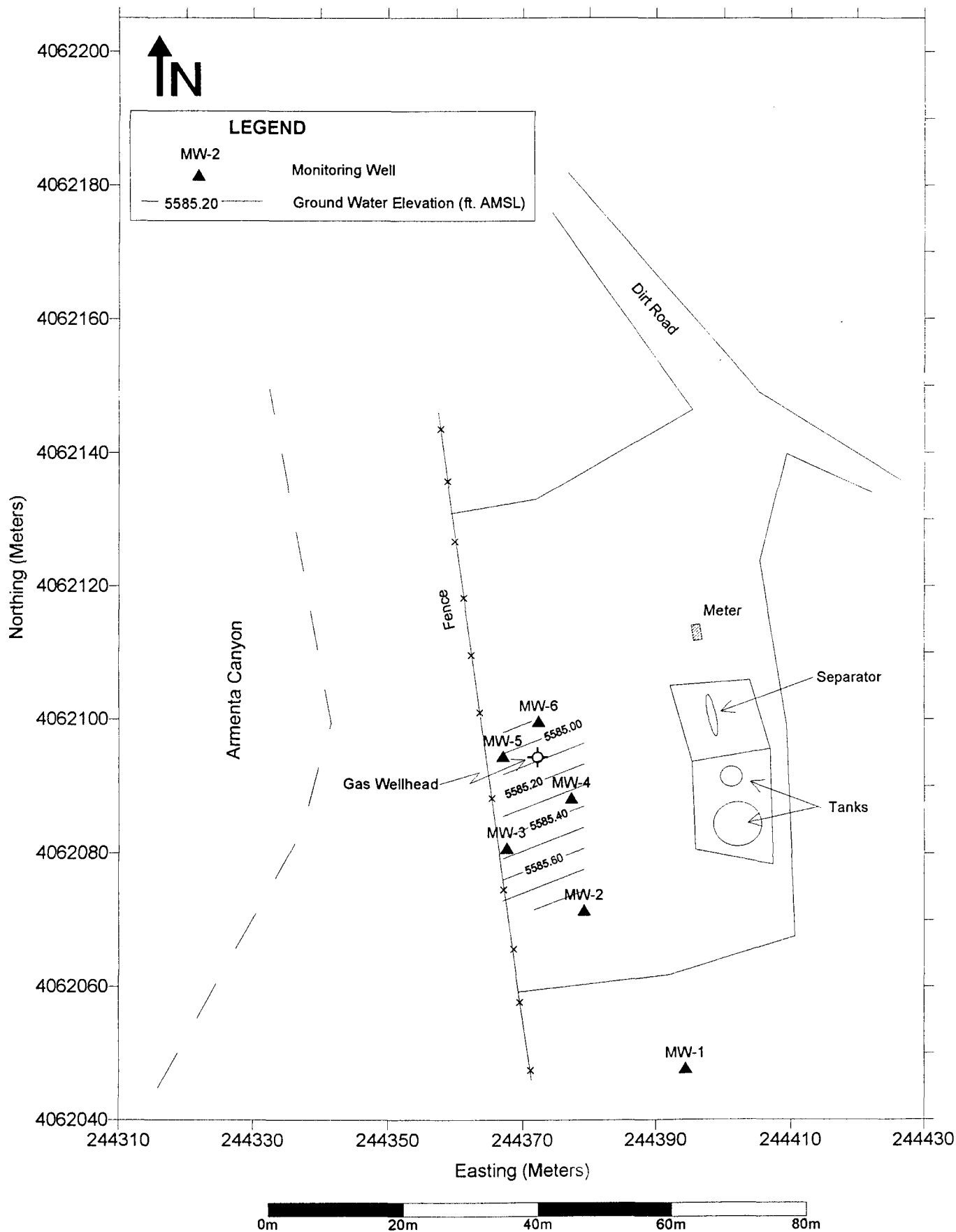


EXHIBIT A

Original Pit Closure Reports

District I

Box 1980, Hobbs, NM

District II

P.O. Drawer DD, Artesia, NM 88221

District III

1000 Rio Brazos Rd, Aztec, NM 87410

State of New Mexico

Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

SUBMIT 1 COPY TO

APPROPRIATE

DISTRICT OFFICE

AND 1 COPY TO

SANTA FE OFFICE

PIT REMEDIATION AND CLOSURE REPORTOperator PNM Gas ServicesTelephone: (505) 324-3764Address: 603 West Elm Farmington, NM 87401Facility or Well Name: Zachry #18ELocation: Unit or Qtr/Qtr Sec 0 Sec 11 T 28N R 10W County San JuanPit Type: Separator Dehydrator X Other abandoned, dehy removedLand Type: BLM X State Fee Other Pit Location: Pit dimensions: length 20 width 20 depth 3Attach diagram) Reference: wellhead X other Footage from reference: 80Direction from reference 80° Degrees X East North
of
 West South X**Depth to Ground Water:**

(Vertical distance from contaminants to seasonal high water elevation of ground water)

35' Less than 50 feet (20 points)
50 feet to 99 feet (10 points)
Greater than 100 feet (0 points) 20**Wellhead Protection Area:**

(Less than 200 feet from a private domestic water source, or; less than 1,000 feet from all other water sources)

Yes (20 points)
No (0 points) 0**Distance to Surface Water:**

(Horizontal distance to perennial lakes, ponds, rivers, streams, creeks, irrigation canals and ditches)

Less than 200 feet (20 points)
200 feet to 1,000 feet (10 points)
Greater than 1,000 feet (0 points) 0RANKING SCORE (TOTAL POINTS): 20

Date Remediation Started: 8-26-96 Date Completed: _____
Remediation Method: Excavation X Approx. cubic yards 362.66

(Check all appropriate sections) Landfarmed X Insitu Bioremediation _____
Other _____

Remediation Location: Onsite X Offsite _____
(i.e., landfarmed onsite, name and location of offsite facility)

General Description of Remedial Action: _____

Ground Water Encountered: No _____ Yes X Depth ~10'

Final Pit Sample location Pit walls and bottom/water sample

Closure Sampling: _____

(if multiple samples, attach sample results and diagram of sample locations and depths)

Sample depth _____

Sample date _____ Sample time _____

Sample Results

Benzene (ppm) _____

Total BTEX (ppm) _____

Field headspace (ppm) _____

TPH _____

Ground Water Sample: Yes X No _____ (If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

DATE 8-28-96

SIGNATURE Ray Horton PRINTED NAME Ray Horton
AND TITLE PNM Environmental Tech II

\\3078\\PITFORM

@ 0815
8-27-96
@ 1015

9792
27 = 362.6

Excavation Work Sheet						
Well Name	Operator	S	T	R	UI	
Zachry # 18E	Meridian	11	28N	10W	0	
Pit Dimensions at Start		Excavation Dimensions at End				
20 X 20 X 3		34'(E+W) X 24'(N+S) X 12'				
Excavated Cu. Yds.	Overburden Cu. Yds.			Spoil Cu. Yds.		
362.66	0			362.66		
PIT PID READINGS						
Feet	Center	N. Wall	S. Wall	E. Wall	W. Wall	Soil Type
3'	891					Sand
6'	1142					Sand
9'	1451	763	1288	891	1046	Sand
12'	1510	500	695	780	735	Sand
15' 13'	1451					Sand
18'						
21'						
Composite Sample # 9608271015						
Location	Depth		PID Reading			
North Wall	12'		489			
South Wall	12'		580			
East Wall	12'		691			
West Wall	12'		846			
Pit Bottom	12'		570			
Land Farm Location:	On location					
Back Fill Location:	wash .5 miles east/south of Hark #4					
Comments:	Tuesday morning @ 0819, standing water in excavation approximately 1'-2' deep X 20X20. Water flow appears to be from NE to SW - as we cleaned out the bottom of the excavation the flow continued to be from N to S. we were inhibited from digging NE, E+W due to buried pipelines. Excavating further south caused the banks along the pipelines to become very unstable					

B14/Gr
B14/Gr
B14/Gr
B14/Gr
B14/Gr

OFF: (505) 325-5667



LAB: (505) 325-1556

Diesel Range Organics

Attn: *Denver Bearden*
 Company: *PNM Gas Services*
 Address: *603 W. Elm*
 City, State: *Farmington, NM 87401*

Date: *29-Aug-96*
 COC No.: *4952*
 Sample No. *11907*
 Job No. *2-1000*

Project Name: *PNM Gas Services - Zachry #18E*
 Project Location: *9608271015; Pit Excavation Composite Sample*
 Sampled by: *RH* Date: *27-Aug-96* Time: *10:15*
 Analyzed by: *DC/HR* Date: *29-Aug-96*
 Sample Matrix: *Soil*

Laboratory Analysis

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i>20.4</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

Quality Assurance ReportDRO QC No.: *0489-QC****Calibration Check***

<i>Parameter</i>	<i>Method Blank</i>	<i>Unit of Measure</i>	<i>True Value</i>	<i>Analyzed Value</i>	<i>% Diff</i>	<i>Limit</i>
<i>Diesel Range (C10 - C28)</i>	<i><5.0</i>	<i>ppm</i>	<i>100</i>	<i>108</i>	<i>7.9</i>	<i>15%</i>

Matrix Spike

<i>Parameter</i>	<i>1- Percent Recovered</i>	<i>2 - Percent Recovered</i>	<i>Limit</i>	<i>%RSD</i>	<i>Limit</i>
<i>Diesel Range (C10-C28)</i>	<i>108</i>	<i>103</i>	<i>(70-130)</i>	<i>4</i>	<i>20%</i>

Method - *SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography*

Approved by: *JAC*
 Date: *8/29/96*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

AROMATIC VOLATILE ORGANICS

Attn: *Denver Bearden*
Company: *PNM Gas Services*
Address: *603 W. Elm*
City, State: *Farmington, NM 87401*

Date: *29-Aug-96*
COC No.: *4952*
Sample No. *11907*
Job No. *2-1000*

Project Name: *PNM Gas Services - Zachry #18E*
Project Location: *9608271015; Pit Excavation Composite Sample*
Sampled by: *RH* Date: *27-Aug-96* Time: *10:15*
Analyzed by: *DC* Date: *27-Aug-96*
Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Result	Unit of Measure	Detection Limit	Unit of Measure
<i>Benzene</i>	<i>326.0</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
<i>Toluene</i>	<i>7354.6</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
<i>Ethylbenzene</i>	<i>1305.8</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
<i>m,p-Xylene</i>	<i>16158.1</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
<i>o-Xylene</i>	<i>3103.8</i>	<i>ug/kg</i>	<i>0.2</i>	<i>ug/kg</i>
	<i>TOTAL</i>	<i>28248.3</i>		<i>ug/kg</i>

Method - *SW-846 EPA Method 8020 Aromatic Volatile Organics by Gas Chromatography*

Approved by: *[Signature]*
Date: *8/29/96*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -



QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 27-Aug-96

Internal QC No.: 0486-QC

Surrogate QC No.: 0488-QC

Reference Standard QC No.: 0417-QC

Method Blank

Parameter	Result	Unit of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

Parameter	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	21.1	6	15%
Toluene	ppb	20.0	21.0	5	15%
Ethylbenzene	ppb	20.0	21.3	6	15%
m,p-Xylene	ppb	40.0	41.6	4	15%
o-Xylene	ppb	20.0	20.4	2	15%

Matrix Spike

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	116	110	(39-150)	4	20%
Toluene	113	108	(46-148)	4	20%
Ethylbenzene	110	105	(32-160)	4	20%
m,p-Xylene	105	100	(35-145)	3	20%
o-Xylene	102	97	(35-145)	3	20%

Surrogate Recoveries

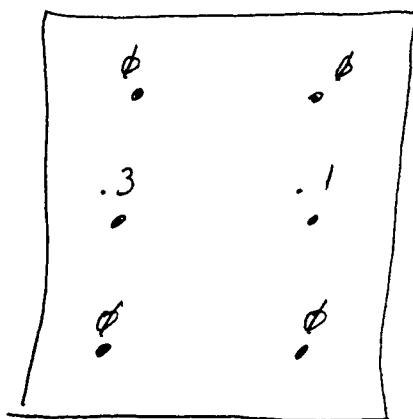
Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovery	(70-130)	
11907-4952	94	

S1: Fluorobenzene

Zachry 18-E
Meridian Oil
Sec. 11, 28N, 10W

9-26-96

Land Farmed: On location JPS
composite sample # 96092⁶1100 6 pt.
Soil Vapor Head space = 14.8 ppm PID reading



2'-12" depth



OFF: (505) 325-5667



LAB: (505) 325-1556

Diesel Range Organics

Attn: *Denver Bearden*
Company: *PNM Gas Services*
Address: *603 W. Elm*
City, State: *Farmington, NM 87401*

Date: *28-Sep-96*
COC No.: *5054*
Sample No. *12343*
Job No. *2-1000*

Project Name: *PNM Gas Services - Zachry #18E Landfarm*
Project Location: *9609261100; 6pt. Composite, 2"-12" depth*
Sampled by: *GC* Date: *26-Sep-96* Time: *11:00*
Analyzed by: *HR* Date: *28-Sep-96*
Sample Matrix: *Soil*

Laboratory Analysis

<i>Parameter</i>	<i>Result</i>	<i>Unit of Measure</i>	<i>Detection Limit</i>	<i>Unit of Measure</i>
<i>Diesel Range Organics (C10 - C28)</i>	<i><5.0</i>	<i>mg/kg</i>	<i>5.0</i>	<i>mg/kg</i>

Quality Assurance ReportDRO QC No.: *0489-QC****Calibration Check***

<i>Parameter</i>	<i>Method Blank</i>	<i>Unit of Measure</i>	<i>True Value</i>	<i>Analyzed Value</i>	<i>% Diff</i>	<i>Limit</i>
<i>Diesel Range (C10 - C28)</i>	<i><5.0</i>	<i>ppm</i>	<i>100</i>	<i>96</i>	<i>4.4</i>	<i>15%</i>

Matrix Spike

<i>Parameter</i>	<i>1- Percent Recovered</i>	<i>2 - Percent Recovered</i>	<i>Limit</i>	<i>%RSD</i>	<i>Limit</i>
<i>Diesel Range (C10-C28)</i>	<i>99</i>	<i>100</i>	<i>(70-130)</i>	<i>1</i>	<i>20%</i>

Method - SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by: *[Signature]*
Date: *9/28/96*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

istrict I
O Box 1980, Hobbs, NM

istrict II
Drawer DD, Artesia, NM 88221

istrict III
000 Rio Brazos Rd, Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

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APPROPRIATE
DISTRICT OFFICE
AND 1 COPY TO
SANTA FE OFFICE

OIL CONSERVATION DIVISION

2040 South Pacheco Street
Santa Fe, New Mexico 87505

PIT REMEDIATION AND CLOSURE REPORT

Operator: PNM Gas Services (Taurus) Telephone: 324-3764

Address: 603 W. Elm Street Farmington, NM 87401

Facility or Well Name: Zachary 18E

Location: Unit: 0 Sec. 11 T. 28N R. 10 W County San Juan

Pit Type: Separator Dehydrator Other 20 pit

Land Type: BLM X State Fee Other

Pit Location: Pit dimensions: length N/A width N/A depth N/A

(Attach diagram) Reference: wellhead other

Footage from reference:

Direction from reference: Degrees East North

 West of South

Depth to Ground Water: Less than 50 feet (20 points)
50 feet to 99 feet (10 points)
Greater than 100 feet (0 points) 20

(Vertical distance from contaminants to
seasonal high water elevation of ground
water)

Wellhead Protection Area:

Yes (20 points)
No (0 points) 0

(Less than 200 feet from a private
domestic water source, or, less than 1,000
feet from all other water sources)

Distance to Surface Water:

Less than 200 feet (20 points)
200 feet to 1,000 feet (10 points)
Greater than 1,000 feet (0 points) 20

(Horizontal distance to perennial lakes,
ponds, rivers, streams, creeks, irrigation
canals and ditches)

RANKING SCORE (TOTAL POINTS):

40

Date Remediation Started:

1-19-98

Date Completed:

1-28-98

Remediation Method:

Excavation

X

Approx. Cubic Yard

3518

(Check all appropriate sections)

Landfarmed

X

Amount Landfarmed (cubic yds)

2718

Other _____

Remediation Location:

Onsite

X700 yds

Offsite

Zachry 27(N) 11-28N-10W 1000 yds
Zachry 34(E) 34-24N-10W 1018 yds.

(i.e., landfarmed onsite, name and location of offsite facility)

Backfill Material Location:

SLM wash adjacent to Zachry 23 - blue wash .5 mi. north of Hare #4

General Description of Remedial Action:

excavated location land farmed contained soil on site (600 yds) and 100 yds on Zachry #27 and 100 yds on Zachry 34. Back filled excavation with clean material from nearby wash.

Ground Water Encountered:

No

1

Yes

2

Depth

10'Final Pit Closure
Sampling:

Sample Location

west well and well head "pit area"

(if multiple samples, attach sample result and diagram of sample locations and depths.)

Sample depth

9 to 10'

Sample date

1-20-98 + 1-21-98

Sample time

1-20-98 - 1520
1-21-98 - 0815
1-21-98 - 1430

Sample Results

Benzene (ppm)

Total BTEX (ppm)

Field headspace (ppm)

TPH

Method

Vertical Extent (ft)

Risk Assessment form attached

Yes

2

No

1

Ground Water Sample:

Yes

1

No

2

(If yes, attach sample results)

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND MY BELIEF

DATE

1-29-98

SIGNATURE

Ray AustinPRINTED NAME
AND TITLE

Denver Bearden

Administrator III

1-19-98 @ 0815
 1-20-98 @ 0730
 1-21-98 @ 0720
 1-22-98 @ 0730

Excavation Work Sheet

Well Name	Operator	S	T	R	UI
Zachry 18E	Taurus	11	28N	10W	0

Pit Dimensions at Start	Excavation Dimensions at End
N/A	74.5'(E+W) X 127.5'(N+S) X 10'D

74.5 X 127.5 X 10
 98987.5
 27
 3518.05

Excavated Cu. Yds.	Overburden Cu. Yds.	Spoil Cu. Yds.
3518	~800	2718

PIT PID READINGS

Feet	Center	N. Wall	S. Wall	E. Wall	W. Wall	Soil Type
3'	0	0	0	0	0	sand
6'	640	0	0	0	0	sand
9'	943	812	0	0	266	sand
12'-10'	931	1500	0	0	829	sand
15'				0		
18'						
21'						

Composite Sample

Location	Depth	PID Reading
North Wall	N/A	N/A
South Wall	N/A	N/A
East Wall	N/A	N/A
West Wall	9' @ 10'	914
Pit Bottom	N/A	N/A

Land Farm Location:

Zachry #27 & Zachry #34 = 27 legs are
 (N) 11-28N-10W approx 1000 yds & #34 (D) 3429N-10W approx 1018 yds.

Back Fill Location:

Wash near Zachry 23 and .5 miles N of Hare #4

Comments:

started digging south of MW #4 and north of old one.
 at one point the cont. band raised to within 1.5' of surface, this
 was approx. 8' south of MW #4. Cont. continued to expand
 north, east, and west. Eastward the cont. terminated approx. 7'
 west from tank bath fence. We dug westward until we endangered
 the fence, cont. extended to the fence and MW #3 & MW #5
 northward we dug until the contamination band was only 2' &

in width, and contained in the northwest corner. The west wall remained contaminated by a band of approx 2' along its entire length. Two composite samples were taken. The first was from 3 points along the wall south of the well head. #9801201520. The 2nd was from 3 points north of the well head sample #9801211430. A 3rd composite sample was collected from the earth left around the well head, this was a composite of all 4 of the walls of this soil - sample #9801210855. The east wall cleaned up very well along its entire length. ~~the~~ The south wall was clean up to its intersection with the west wall. We land farmed on ^{two} locations Zachry #27 + #34 both on the same lease and both are Taurus locations. We used backfill material from 2 sources, one adjacent to Zachry 23, and the 2nd ~~to~~ north of Hare #4 about .5 miles.

On 1-28-98 a line off the ~~the~~ east side of the well head, was determined to need straightening. During backfilling operations it appeared as if the "compaction" process ~~pushed~~ pushed it over. I spoke to Diamond D about the need to straighten it up.



FENCE

ARMENTA WASH

MW
#5

CURRENT EXCAVATION
3518 YDS. EXCAVATED
800 YDS. APPROXIMATE
CLEAN OVERBURDEN
2718 YDS. APPROXIMATE SPOIL

MW
#3

MW
#2

PREVIOUS EXCAVATION

MH MH

S
E
P

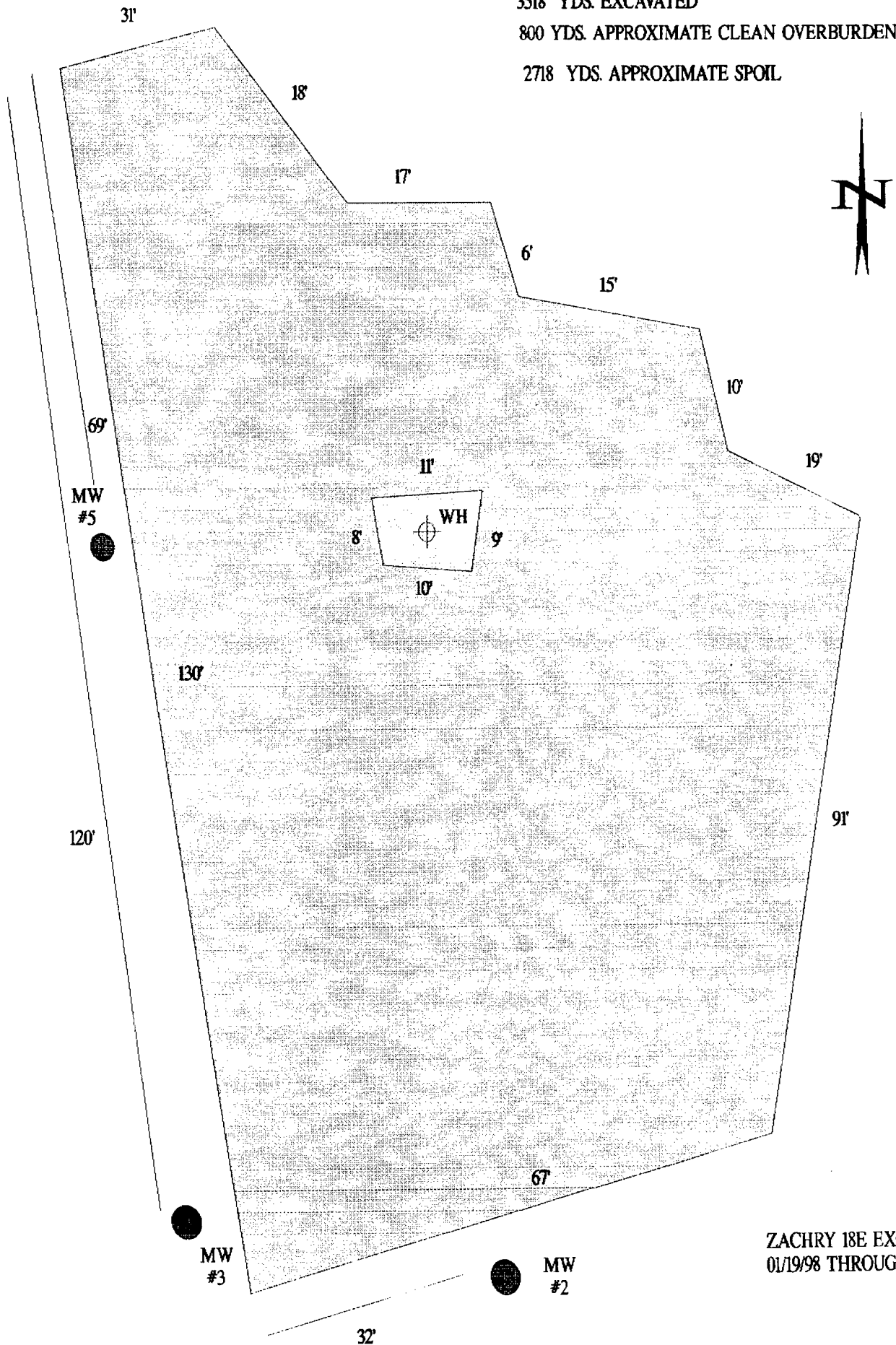
300
BBL

ZACHRY 18E EXCAVATION
01/19/98 THROUGH 01/22/98

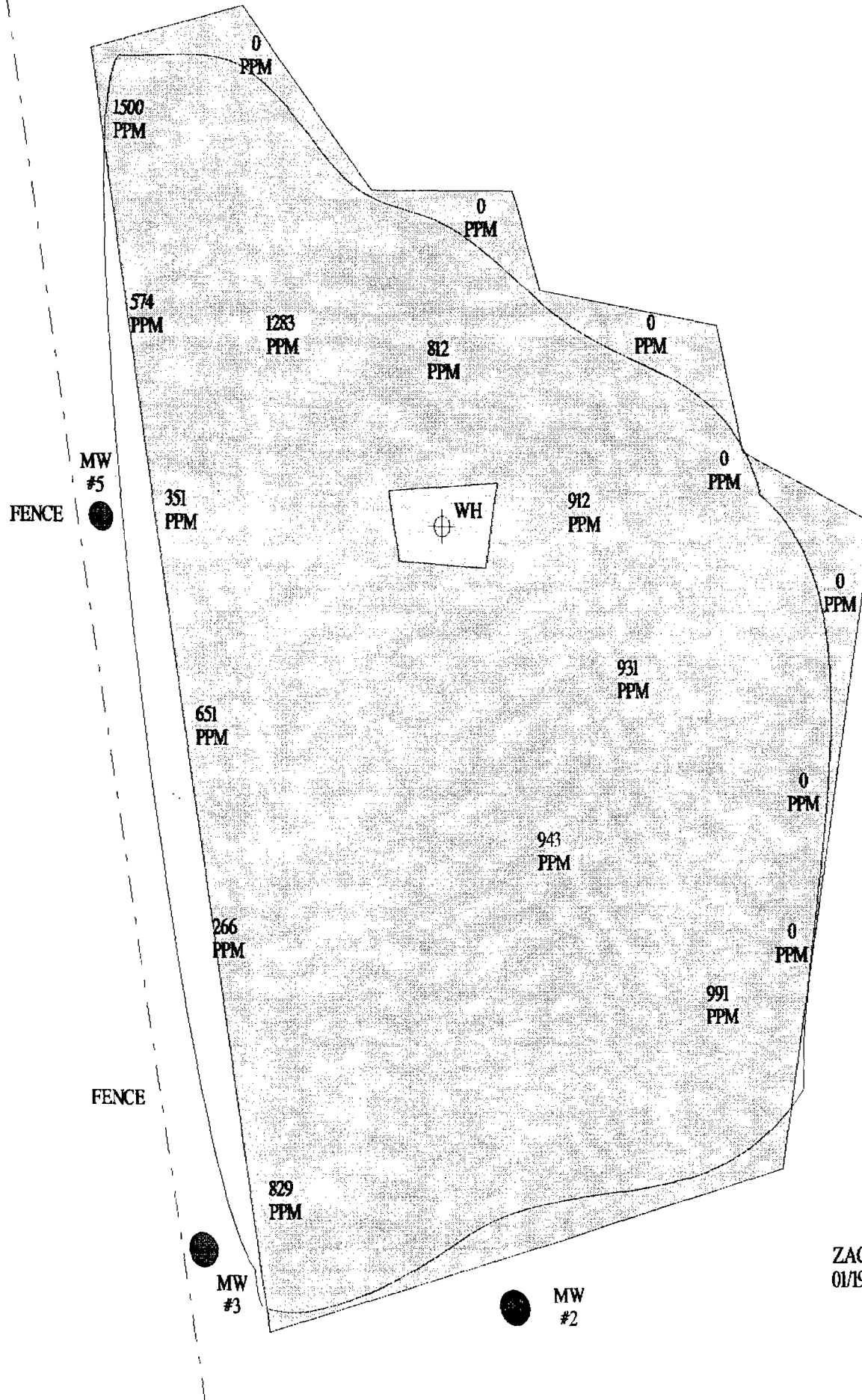
3518 YDS. EXCAVATED

800 YDS. APPROXIMATE CLEAN OVERBURDEN

2718 YDS. APPROXIMATE SPOIL

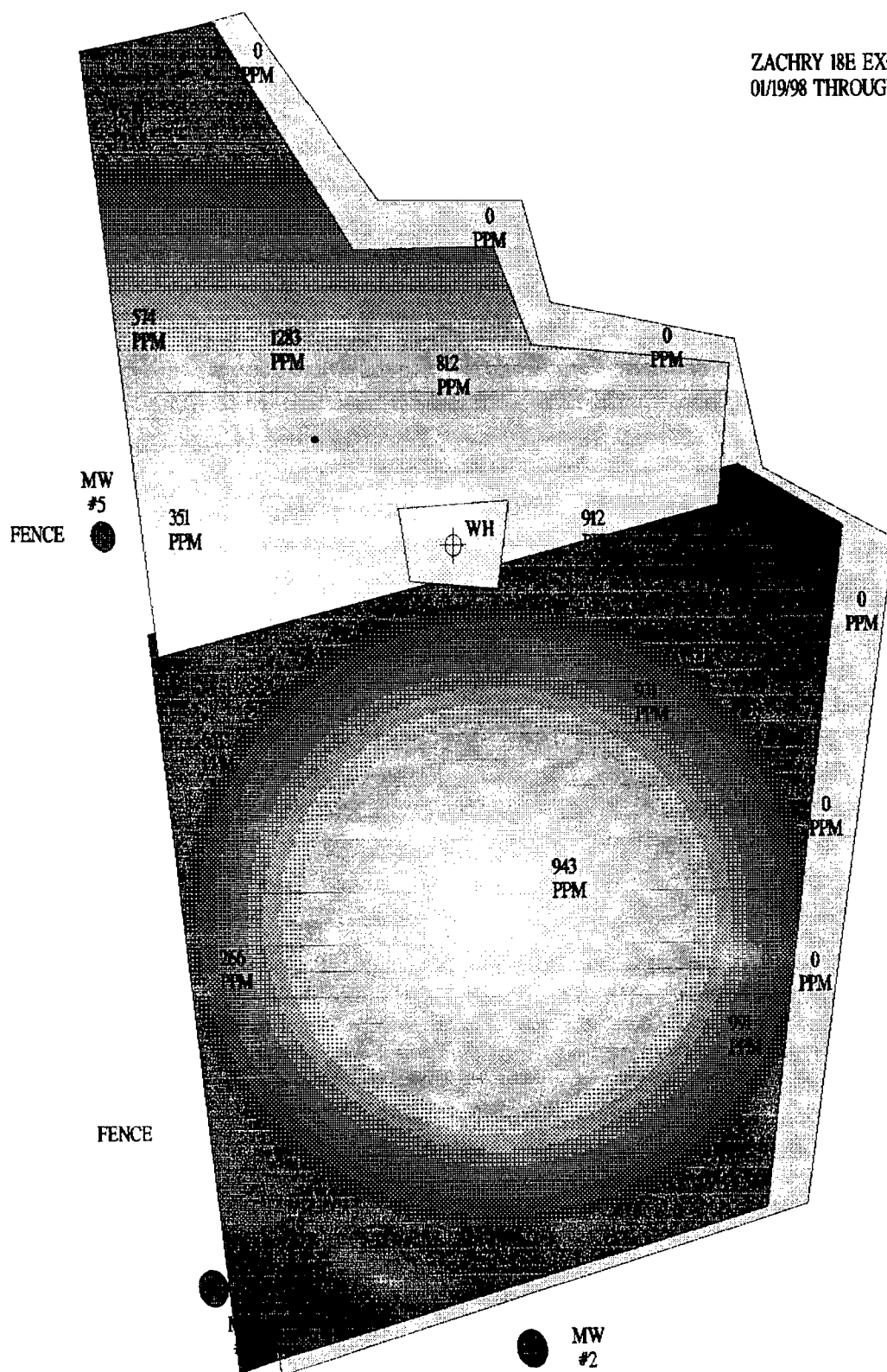


ZACHRY 18E EXCAVATION
01/19/98 THROUGH 01/22/98



ZACHRY 18E EXCAVATION
01/19/98 THROUGH 01/22/98

ZACHRY 18E EXCAVATION
01/19/98 THROUGH 01/22/98

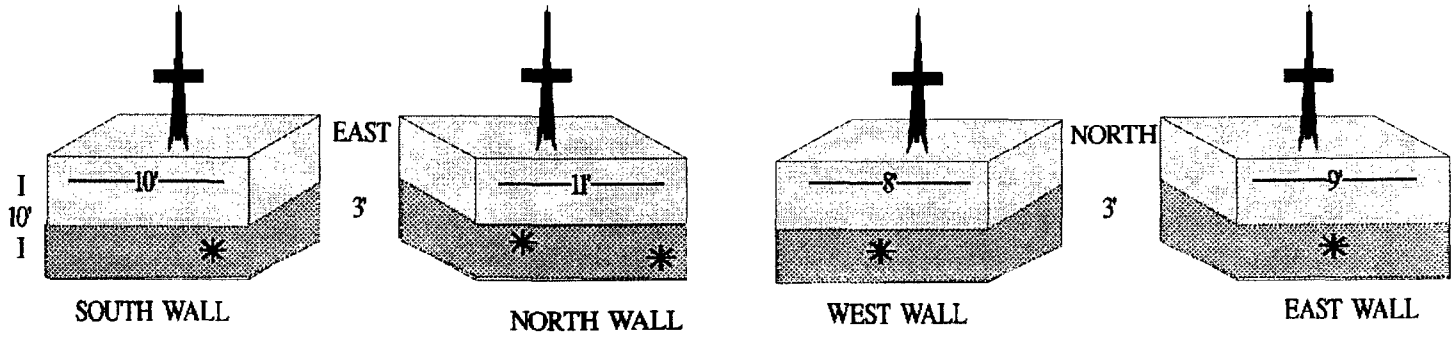


ADDITIONAL SOURCE OF CONTAMINATION NORTH OF WELL HEAD

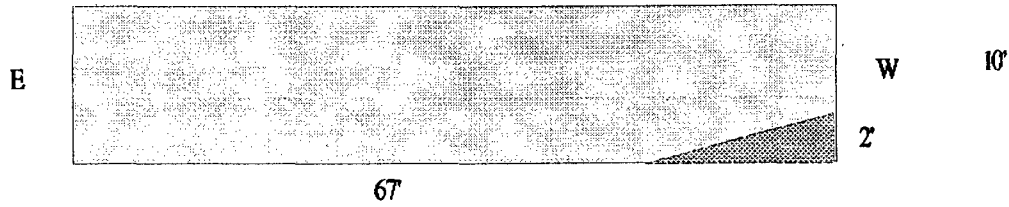


ADDITIONAL SOURCE OF CONTAMINATION SOUTH OF WELL HEAD

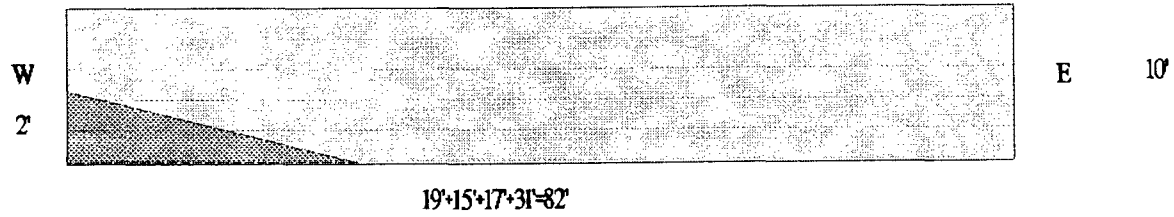
SOIL LEFT AROUND WELL HEAD



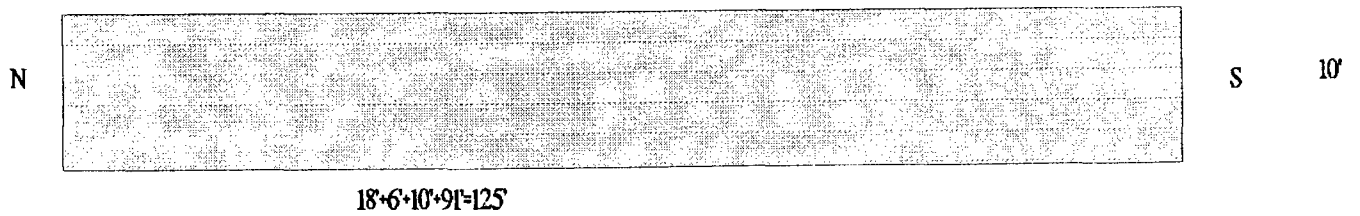
SOUTH WALL



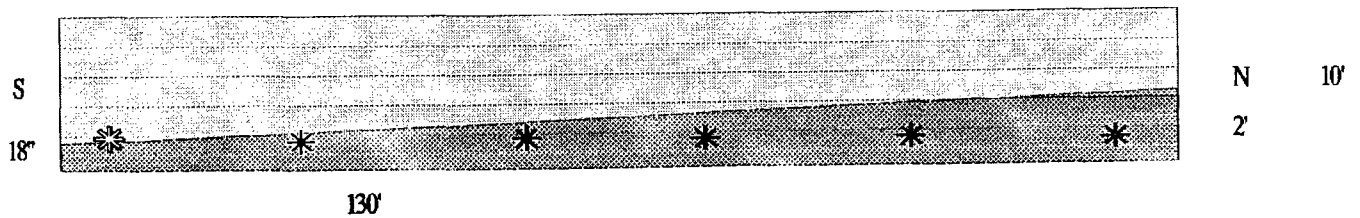
NORTH WALL



EAST WALL



WEST WALL



* = composite lab sample locations

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: *Denver Bearden*
Company: *PNM Gas Services*
Address: *603 W. Elm*
City, State: *Farmington, NM 87401*

Date: *27-Jan-98*
COC No.: *5987*
Sample No.: *17382*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Zachry 18E*
Project Location: *9701201520; West Wall Composite*
Sampled by: *RH* Date: *20-Jan-98* Time: *15:20*
Analyzed by: *DC* Date: *23-Jan-98*
Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Diesel Range Organics (C10 - C28)</i>	<i>8</i>	<i>mg/kg</i>	<i>5</i>	<i>mg/kg</i>

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

DRO QC No.: 0555-STD

Continuing Calibration Verification

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Diesel Range (C10 - C28)</i>	<i>ND</i>	<i>ppm</i>	<i>200</i>	<i>183</i>	<i>9.1</i>	<i>15%</i>

Matrix Spike

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
<i>Diesel Range (C10-C28)</i>	<i>92</i>	<i>94</i>	<i>(70-130)</i>	<i>2</i>	<i>20%</i>

Method - *SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography*

Approved by: *[Signature]*

Date: *1/27/98*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: *Denver Bearden*
Company: *PNM Gas Services*
Address: *603 W. Elm*
City, State: *Farmington, NM 87401*

Date: *27-Jan-98*
COC No.: *5987*
Sample No.: *17382*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Zachry 18E*
Project Location: *9801201520; West Wall Composite*
Sampled by: *RH* Date: *20-Jan-98* Time: *15:20*
Analyzed by: *DC* Date: *23-Jan-98*
Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	ND	ug/kg	1	ug/kg
<i>Toluene</i>	ND	ug/kg	2	ug/kg
<i>Ethylbenzene</i>	3	ug/kg	1	ug/kg
<i>m,p-Xylene</i>	4	ug/kg	2	ug/kg
<i>o-Xylene</i>	2	ug/kg	1	ug/kg
	<i>TOTAL</i>	9		ug/kg

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved by: *[Signature]*
Date: *1/27/98*

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: *Denver Bearden*
Company: *PNM Gas Services*
Address: *603 W. Elm*
City, State: *Farmington, NM 87401*

Date: *27-Jan-98*
COC No.: *5988*
Sample No.: *17383*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Zachry 18E*
Project Location: *9701210815; Soil Around Wellhead*
Sampled by: *RH* Date: *21-Jan-98* Time: *8:15*
Analyzed by: *DC* Date: *26-Jan-98*
Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Diesel Range Organics (C10 - C28)</i>	ND	mg/kg	5	mg/kg

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

DRO QC No.: 0555-STD

Continuing Calibration Verification

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Diesel Range (C10 - C28)</i>	ND	ppm	200	202	1.2	15%

Matrix Spike

Parameter	1 - Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
<i>Diesel Range (C10-C28)</i>	92	94	(70-130)	2	20%

Method - SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography

Approved by: *[Signature]*
Date: *1/27/98*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: *Denver Bearden*
Company: *PNM Gas Services*
Address: *603 W. Elm*
City, State: *Farmington, NM 87401*

Date: *27-Jan-98*
COC No.: *5988*
Sample No.: *17383*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Zachry 18E*
Project Location: *9801210815; Soil Around Wellhead*
Sampled by: *RH* Date: *21-Jan-98* Time: *8:15*
Analyzed by: *DC* Date: *23-Jan-98*
Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	ND	ug/kg	1	ug/kg
<i>Toluene</i>	ND	ug/kg	2	ug/kg
<i>Ethylbenzene</i>	2	ug/kg	1	ug/kg
<i>m,p-Xylene</i>	16	ug/kg	2	ug/kg
<i>o-Xylene</i>	4	ug/kg	1	ug/kg
	<i>TOTAL</i>	22		ug/kg

ND - Not Detected at Limit of Quantitation

Method - SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography

Approved by: *[Signature]*
Date: *1/27/98*

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: *Denver Bearden*
Company: *PNM Gas Services*
Address: *603 W. Elm*
City, State: *Farmington, NM 87401*

Date: *27-Jan-98*
COC No.: *5988*
Sample No.: *17384*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Zachry 18E*
Project Location: *9701211430; North-half of West Wall*
Sampled by: *RH* Date: *21-Jan-98* Time: *14:30*
Analyzed by: *DC* Date: *26-Jan-98*
Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Diesel Range Organics (C10 - C28)</i>	<i>13</i>	<i>mg/kg</i>	<i>5</i>	<i>mg/kg</i>

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

DRO QC No.: 0555-STD

Continuing Calibration Verification

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
<i>Diesel Range (C10 - C28)</i>	<i>ND</i>	<i>ppm</i>	<i>200</i>	<i>202</i>	<i>1.2</i>	<i>15%</i>

Matrix Spike

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
<i>Diesel Range (C10-C28)</i>	<i>92</i>	<i>94</i>	<i>(70-130)</i>	<i>2</i>	<i>20%</i>

Method - *SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography*

Approved by: *[Signature]*
Date: *1/27/98*

P.O. BOX 2606 • FARMINGTON, NM 87499
- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Attn: *Denver Bearden*
Company: *PNM Gas Services*
Address: *603 W. Elm*
City, State: *Farmington, NM 87401*

Date: *27-Jan-98*
COC No.: *5988*
Sample No.: *17384*
Job No.: *2-1000*

Project Name: *PNM Gas Services - Zachry 18E*
Project Location: *9801211430; North-half of West Wall*

Sampled by: *RH* Date: *21-Jan-98* Time: *14:30*
Analyzed by: *DC* Date: *23-Jan-98*
Sample Matrix: *Soil*

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
<i>Benzene</i>	ND	ug/kg	25	ug/kg
<i>Toluene</i>	734	ug/kg	50	ug/kg
<i>Ethylbenzene</i>	225	ug/kg	25	ug/kg
<i>m,p-Xylene</i>	1901	ug/kg	50	ug/kg
<i>o-Xylene</i>	422	ug/kg	25	ug/kg
	<i>TOTAL</i>	3282	ug/kg	

ND - Not Detected at Limit of Quantitation

Method - *SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography*

Approved by: *[Signature]*
Date: *1/27/98*

Zachry 18E

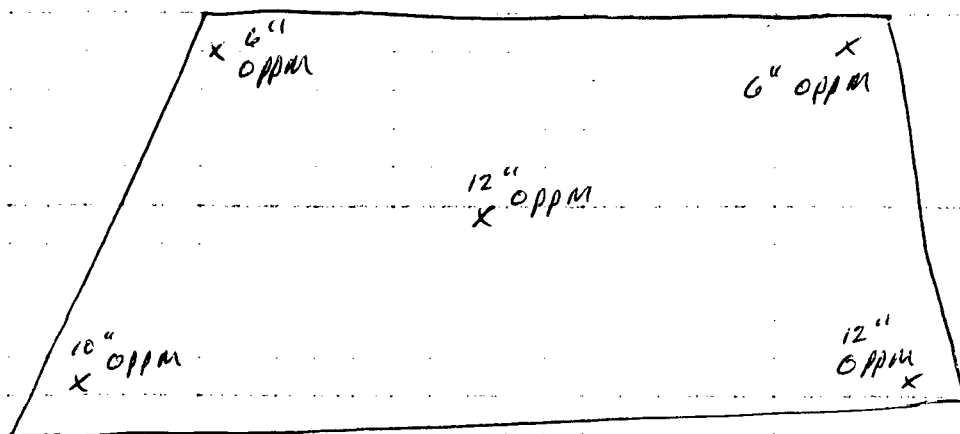
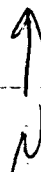
960FSL 1455 FEL

11-28N-10W

Taurus

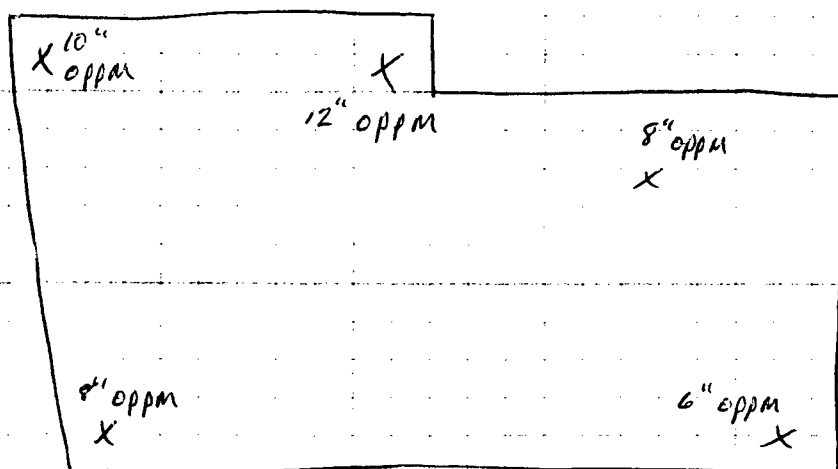
Lab Sample # 9805201150

Field headspace - 5.7 ppm



BWH

6"-12"



OFF: (505) 325-5667



LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 28-May-98

Client:	PNM - Public Service Company of NM	Client Sample Info:	Zachry 18E
Work Order:	9805061	Client Sample ID:	9805201150; Landfarm Comp.
Lab ID:	9805061-03A	Matrix:	SOIL
Project:	Landfarm Composites	Collection Date:	5/20/98 11:50:00 AM
		COC Record:	5220

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		SW8015				Analyst: DC
T/R Hydrocarbons: C10-C28	ND	25		mg/Kg	1	5/27/98

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at Practical Quantitation Limit
J - Analyte detected below Practical Quantitation Limit
B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

1 of 1

P.O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

Zachry 18E Land farm on Zachry 27

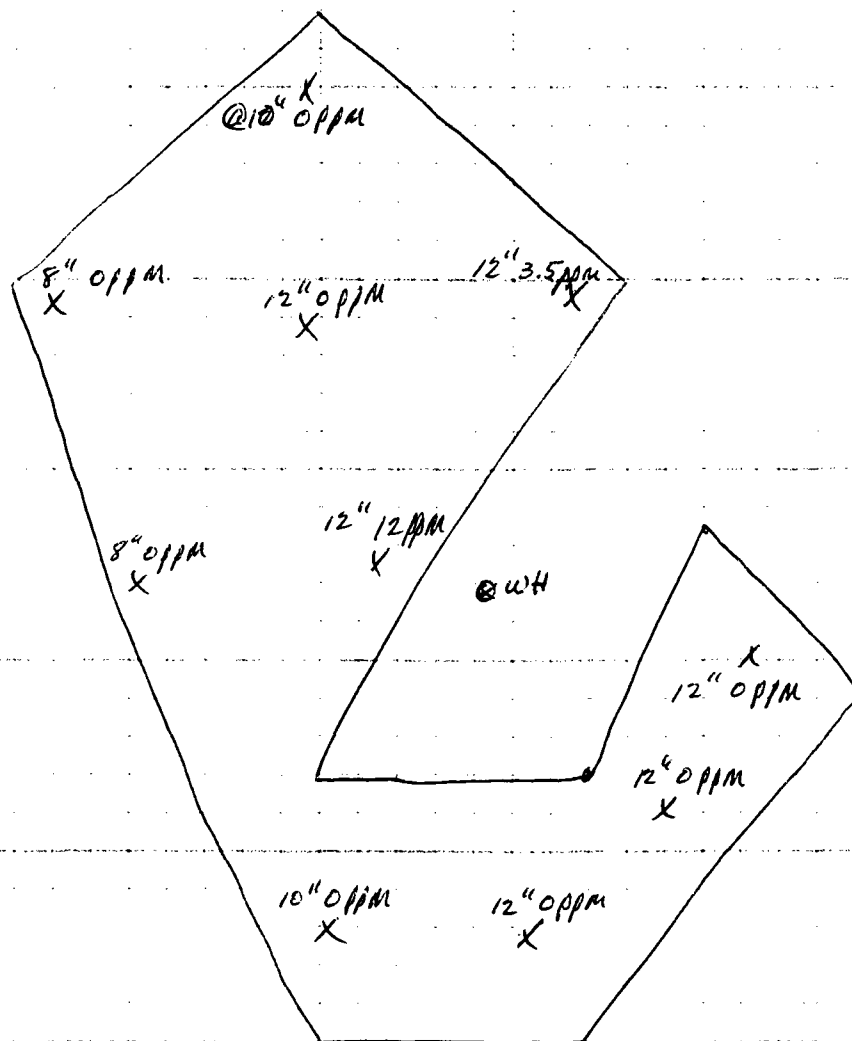
970 FSL 940 FWL

11-28N-10W

Taurus

Lab sample # 9805201115

Field head space - 0 ppm



OFF: (505) 325-5667

ON SITE

TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 28-May-98

Client:	PNM - Public Service Company of NM	Client Sample Info:	Zachry 27 (18E)
Work Order:	9805061	Client Sample ID:	9805201115; Landfarm Comp.
Lab ID:	9805061-01A	Matrix:	SOIL
Project:	Landfarm Composites	Collection Date:	5/20/98 1:15:00 AM
		COC Record:	5220

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		SW8015				Analyst: HR
T/R Hydrocarbons: C10-C28	ND	25		mg/Kg	1	5/27/98

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

1 of 1

Zachry 18E Land farm on Zachry #34

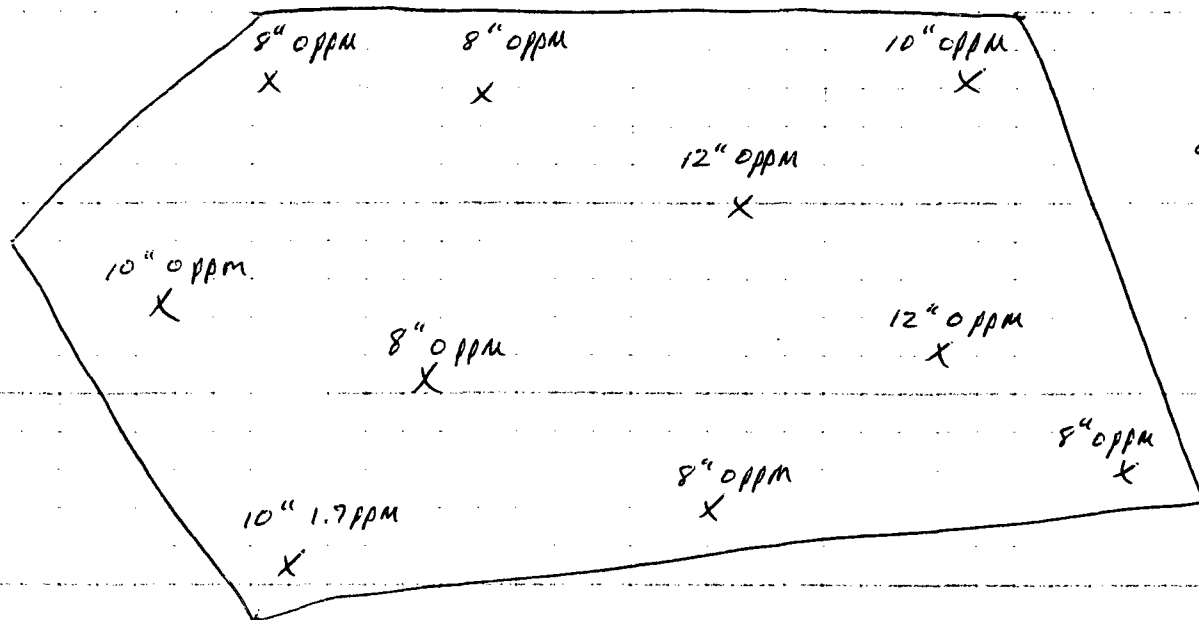
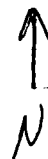
1980 FSL 660 FEL

34-29N-10W

Taurus

Lab sample # 980520 1140

Field headspace - 1.7 ppm



WH

OFF: (505) 325-5667

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Date: 28-May-98

Client:	PNM - Public Service Company of NM	Client Sample Info:	Zachry 34 (18E)
Work Order:	9805061	Client Sample ID:	9805201140; Landfarm Comp.
Lab ID:	9805061-02A	Matrix:	SOIL
Project:	Landfarm Composites	Collection Date:	5/20/98 11:40:00 AM
		COC Record:	5220

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		SW8015				Analyst: HR
T/R Hydrocarbons: C10-C28	ND	25		mg/Kg	1	5/27/98

Qualifiers:	PQL - Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	ND - Not Detected at Practical Quantitation Limit	R - RPD outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	E - Value above quantitation range
	B - Analyte detected in the associated Method Blank	Surr: - Surrogate

EXHIBIT B

Analytical Data Summary

Analytical Data Summary

Site Name:

Zachry 18E

Reporting Period:

10/1/96 To 12/31/02

Well ID	Sample Date	Sample ID	Benzene ug/l	Toluene ug/l	Ethylbenzene ug/l	Xylene (Total) ug/l
MW-1						
	12/18/96	9612181000	<0.2	<0.2	<0.2	<0.4
	3/11/97	9703111630	<0.2	<0.2	<0.2	<0.4
	6/19/97	9706191000	<0.2	<0.2	<0.2	<0.4
	9/25/97	9709251330	<0.2	<0.2	<0.2	<0.4
	12/17/97	9712171509	<0.2	<0.2	<0.2	<0.4
	3/10/98	9803100930	<0.5	<0.5	<0.5	<1.5
	6/8/01	102308JUN01	<1	<1	<1	<1
	3/28/02	142928MAR02	ND	ND	ND	ND
	6/15/02	112315JUN02	ND	ND	ND	ND
	9/29/02	131329SEP02	ND	ND	ND	ND
MW-2						
	12/18/96	9612181030	35.3	3.9	198.9	52.2
	3/11/97	9703111700	8.9	3.6	39.8	10.6
	6/19/97	9706191030	4.6	3.3	5.7	1.4
	9/25/97	9709251400	2.2	4.9	7.1	10.7
	12/17/97	9712171536	2.6	5.2	6.9	3.5
	3/10/98	9803100945	2.7	4.4	6.2	2.0
	6/8/01	104008JUN01	<1	<1	<1	1.78
	10/26/01	110326OCT01	<1.0	<2.0	<2.0	<2.0
	3/28/02	145028MAR02	ND	ND	ND	9.4
	6/15/02	120415JUN02	ND	ND	ND	ND
	9/29/02	133329SEP02	ND	ND	ND	ND
MW-3						
	12/18/96	9612181100	1.1	49.2	16.9	121.7
	3/11/97	9703111730	<0.2	<0.2	<0.2	<0.4
	6/19/97	9706191100	<0.2	<0.2	<0.2	<0.2
	9/25/97	9709251430	<0.2	<0.2	<0.2	<0.4
	12/17/97	9712171622	<0.2	<0.2	<0.2	<0.4
	3/10/98	9803101000	<0.5	<0.5	<0.5	<1.5
	6/8/01	104908JUN01	<1	<1	<1	<1
	10/26/01	111626OCT01	<1.0	<2.0	<2.0	<2.0
	3/28/02	145928MAR02	ND	ND	ND	ND
	6/15/02	115715JUN02	ND	ND	ND	ND
	9/29/02	125629SEP02	ND	ND	ND	ND

Site Name:

Zachry 18E

Reporting Period:

10/1/96 To 12/31/02

Well ID	Sample Date	Sample ID	Benzene ug/l	Toluene ug/l	Ethylbenzene ug/l	Xylene (Total) ug/l
MW-4						
	9/25/97	9709251500	393	2866	447	5234
	12/17/97	9712171647	500	2896	312	4320
	3/10/98	9803101030	99	110	97	890
	6/25/98	9806251700	150	2.4	52	390.8
	9/2/98	9809021200	79	2.7	43	140
	12/14/98	9812141500	21	150	24	196
	2/22/99	9902221420	32	14	<2.5	480
	4/20/99	9904201001	52	96	62	347
	8/2/99	9908021318	20	30	24	109
	11/1/99	9911010918	14	14	12	38.8
	1/31/00	0001311025	24	34	16	56
	4/26/00	0004260959	10	2.5	9.4	15.8
	9/29/00	100129SEP00	5.91	7.96	4.91	10.20
	12/7/00	171607DEC00	4.70	3.09	2.43	4.17
	3/14/01	124114MAR01	2.48	2.43	1.29	1.22
	5/11/01	095611MAY01	84.1	22.8	6.15	14.0
	6/8/01	105708JUN01	52.6	10.9	4.94	14.9
	10/26/01	115526OCT01	3.9	4.4	3.5	13
	3/28/02	151328MAR02	ND	ND	ND	ND
	6/15/02	121115JUN02	ND	ND	ND	ND
	9/29/02	134029SEP02	ND	ND	ND	ND
MW-5						
	12/18/96	9612181200	<0.2	<0.2	<0.2	<0.4
	3/11/97	9703111800	<0.2	<0.2	<0.2	<0.4
	6/19/97	9706191200	<0.2	<0.2	0.2	<0.4
	9/25/97	9709251530	<0.2	<0.2	0.2	<0.4
	12/17/97	9712171705	<0.2	<0.2	<0.2	<0.2
	3/10/98	9803101015	<0.5	<0.5	0.6	<1.5
	6/8/01	110708JUN01	<1	<1	<1	<1
	3/28/02	144228MAR02	ND	ND	ND	ND
	6/15/02	114715JUN02	ND	ND	ND	ND
	9/29/02	130429SEP02	ND	ND	ND	ND

Site Name:

Zachry 18E

Reporting Period:

10/1/96 To 12/31/02

Well ID	Sample Date	Sample ID	Benzene ug/l	Toluene ug/l	Ethylbenzene ug/l	Xylene (Total) ug/l
MW-6						
	12/14/98	9812141430	<1.0	<1.0	2	4.5
	2/22/99	9902221440	<0.5	0.8	1	<1.5
	4/20/99	9904201028	<0.5	<0.5	<0.5	<1.5
	8/2/99	9908021345	<0.5	<0.5	<0.5	<1.5
	6/8/01	111408JUN01	<1	<1	<1	<1
	10/26/01	114926OCT01	<1.0	<2.0	<2.0	<2.0
	3/28/02	150428MAR02	ND	ND	ND	ND
	6/15/02	113315JUN02	ND	ND	ND	ND
	9/29/02	132429SEP02	ND	ND	ND	ND

April 04, 2002

Mr. Jim Struhs
MILE HIGH ENVIRONMENTAL
187 C.R. 4980
Bloomfield, NM 87413

RE: Lab Project Number: 6057615
Client Project ID: SJB-GW/ ZAC18E

Dear Mr. Struhs:

Enclosed are the analytical results for sample(s) received by the laboratory on April 2, 2002. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report please feel free to contact me.

Sincerely,



Mary Jane Walls
mjwalls@pacelabs.com
Project Manager

Kansas/NELAP Certification Number E-10116

Enclosures

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc.

SAMPLE SUMMARY

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

Lab Project Number: 6057615
Client Project ID: SJB-GW/ ZAC18E

Project	Sample				
<u>Sample Number</u>	<u>Number</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
6057615-001	605018407	151328MAR02	Water	03/28/02 15:13	04/02/02 09:00
6057615-002	605018415	150428MAR02	Water	03/28/02 15:04	04/02/02 09:00
6057615-003	605018423	145928MAR02	Water	03/28/02 14:59	04/02/02 09:00
6057615-004	605018431	145028MAR02	Water	03/28/02 14:50	04/02/02 09:00
6057615-005	605018449	142928MAR02	Water	03/28/02 14:29	04/02/02 09:00
6057615-006	605018456	144228MAR02	Water	03/28/02 14:42	04/02/02 09:00

REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6057615

Client Project ID: SJB-GW/ ZAC18E

Project			Analysis			Analytes
<u>Sample Number</u>	<u>Sample No</u>	<u>Client Sample ID</u>	<u>Code</u>	<u>Analysis Description</u>		<u>Reported</u>
6057615-001	605018407	151328MAR02	8020 WPAC	Aromatic Volatile Organics		5
6057615-002	605018415	150428MAR02	8020 WPAC	Aromatic Volatile Organics		5
6057615-003	605018423	145928MAR02	8020 WPAC	Aromatic Volatile Organics		5
6057615-004	605018431	145028MAR02	8020 WPAC	Aromatic Volatile Organics		5
6057615-005	605018449	142928MAR02	8020 WPAC	Aromatic Volatile Organics		5
6057615-006	605018456	144228MAR02	8020 WPAC	Aromatic Volatile Organics		5

REPORT OF LABORATORY ANALYSIS

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MILE HIGH ENVIRONMENTAL
187 C.R. 4980
Bloomfield, NM 87413

Lab Project Number: 6057615
Client Project ID: SJB-GW/ ZAC18E

Attn: Mr. Jim Struhs
Phone: (505)632-4457

Lab Sample No: 605018407 Project Sample Number: 6057615-001 Date Collected: 03/28/02 15:13
Client Sample ID: 151328MAR02 Matrix: Water Date Received: 04/02/02 09:00

Parameters	Results	Units	Report Limit	Analyzed by	CAS No.	Ftnote	Reg Limit
GC Volatiles							
Aromatic Volatile Organics		Prep/Method: EPA 8021 / EPA 8021					
Benzene	ND	ug/l	2.0	04/03/02 20:01	71-43-2		
Ethylbenzene	ND	ug/l	2.0	04/03/02 20:01	100-41-4		
Toluene	ND	ug/l	2.0	04/03/02 20:01	108-88-3		
Xylene (Total)	ND	ug/l	5.0	04/03/02 20:01	1330-20-7		
a,a,a-Trifluorotoluene (S)	97	%		04/03/02 20:01	2164-17-2		

Date: 04/04/02

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6057615

Client Project ID: SJB-GW/ ZAC18E

Lab Sample No: 605018415
Client Sample ID: 150428MAR02

Project Sample Number: 6057615-002
Matrix: Water

Date Collected: 03/28/02 15:04
Date Received: 04/02/02 09:00

Parameters	Results	Units	Report Limit	Analyzed by	CAS No.	Ftnote	Reg Limit
------------	---------	-------	--------------	-------------	---------	--------	-----------

GC Volatiles

Aromatic Volatile Organics

Prep/Method: EPA 8021 / EPA 8021

Benzene	ND	ug/l	2.0	04/03/02 13:19	71-43-2		
Ethylbenzene	ND	ug/l	2.0	04/03/02 13:19	100-41-4		
Toluene	ND	ug/l	2.0	04/03/02 13:19	108-88-3		
Xylene (Total)	ND	ug/l	5.0	04/03/02 13:19	1330-20-7		
a,a,a-Trifluorotoluene (S)	98	%		04/03/02 13:19	2164-17-2		

Date: 04/04/02

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6057615
Client Project ID: SJB-GW/ ZAC18E

Lab Sample No: 605018423 Project Sample Number: 6057615-003 Date Collected: 03/28/02 14:59
Client Sample ID: 145928MAR02 Matrix: Water Date Received: 04/02/02 09:00

Parameters	Results	Units	Report Limit	Analyzed by	CAS No.	Ftnote	Reg Limit
------------	---------	-------	--------------	-------------	---------	--------	-----------

GC Volatiles

Aromatic Volatile Organics

Prep/Method: EPA 8021 / EPA 8021

Benzene	ND	ug/l	2.0	04/03/02 13:49	71-43-2		
Ethylbenzene	ND	ug/l	2.0	04/03/02 13:49	100-41-4		
Toluene	ND	ug/l	2.0	04/03/02 13:49	108-88-3		
Xylene (Total)	ND	ug/l	5.0	04/03/02 13:49	1330-20-7		
a,a,a-Trifluorotoluene (S)	99	%		04/03/02 13:49	2164-17-2		

Date: 04/04/02

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Lab Project Number: 6057615

Client Project ID: SJB-GW/ ZAC18E

Lab Sample No: 605018431
Client Sample ID: 145028MAR02

Project Sample Number: 6057615-004
Matrix: Water

Date Collected: 03/28/02 14:50
Date Received: 04/02/02 09:00

Parameters	Results	Units	Report Limit	Analyzed by	CAS No.	Ftnote	Reg Limit
------------	---------	-------	--------------	-------------	---------	--------	-----------

GC Volatiles

Aromatic Volatile Organics

Prep/Method: EPA 8021 / EPA 8021

Benzene	ND	ug/l	2.0	04/03/02 14:18	71-43-2		
Ethylbenzene	ND	ug/l	2.0	04/03/02 14:18	100-41-4		
Toluene	ND	ug/l	2.0	04/03/02 14:18	108-88-3		
Xylene (Total)	9.4	ug/l	5.0	04/03/02 14:18	1330-20-7		
a,a,a-Trifluorotoluene (S)	88	%		04/03/02 14:18	2164-17-2		

Date: 04/04/02

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6057615

Client Project ID: SJB-GW/ ZAC18E

Lab Sample No: 605018449
Client Sample ID: 142928MAR02

Project Sample Number: 6057615-005
Matrix: Water

Date Collected: 03/28/02 14:29
Date Received: 04/02/02 09:00

Parameters	Results	Units	Report Limit	Analyzed by	CAS No.	Ftnote	Reg Limit
GC Volatiles							
Aromatic Volatile Organics	Prep/Method: EPA 8021 / EPA 8021						
Benzene	ND	ug/l	2.0	04/03/02 14:46	71-43-2		
Ethylbenzene	ND	ug/l	2.0	04/03/02 14:46	100-41-4		
Toluene	ND	ug/l	2.0	04/03/02 14:46	108-88-3		
Xylene (Total)	ND	ug/l	5.0	04/03/02 14:46	1330-20-7		
a,a,a-Trifluorotoluene (S)	100	%		04/03/02 14:46	2164-17-2		

Date: 04/04/02

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Lab Project Number: 6057615

Client Project ID: SJB-GW/ ZAC18E

Lab Sample No: 605018456
Client Sample ID: 144228MAR02

Project Sample Number: 6057615-006
Matrix: Water

Date Collected: 03/28/02 14:42
Date Received: 04/02/02 09:00

Parameters	Results	Units	Report Limit	Analyzed by	CAS No.	Ftnote	Reg Limit
GC Volatiles							
Aromatic Volatile Organics		Prep/Method: EPA 8021 / EPA 8021					
Benzene	ND	ug/l	2.0	04/03/02 15:15	71-43-2		
Ethylbenzene	ND	ug/l	2.0	04/03/02 15:15	100-41-4		
Toluene	ND	ug/l	2.0	04/03/02 15:15	108-88-3		
Xylene (Total)	ND	ug/l	5.0	04/03/02 15:15	1330-20-7		
a,a,a-Trifluorotoluene (S)	99	%		04/03/02 15:15	2164-17-2		

Date: 04/04/02

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Lab Project Number: 6057615
Client Project ID: SJB-GW/ ZAC18E

PARAMETER FOOTNOTES

ND Not detected at or above adjusted reporting limit
NC Not Calculable
J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
(S) Surrogate

Date: 04/04/02

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6057615
Client Project ID: SJB-GW/ ZAC18E

QC Batch: 120213 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: Aromatic Volatile Organics
Associated Lab Samples: 605018407 605018415 605018423 605018431 605018449
605018456

METHOD BLANK: 605020601
Associated Lab Samples: 605018407 605018415 605018423 605018431 605018449 605018456

Parameter	Units	Blank	Reporting	Footnotes
		Result	Limit	
Benzene	ug/l	ND	2.0	
Ethylbenzene	ug/l	ND	2.0	
Toluene	ug/l	ND	2.0	
Xylene (Total)	ug/l	ND	5.0	
a,a,a-Trifluorotoluene (S)	%	99		

LABORATORY CONTROL SAMPLE: 605020619

Parameter	Units	Spike	LCS	LCS	% Rec	Footnotes
		Conc.	Result	% Rec	Limits	
Benzene	ug/l	20	19.71	98	84-122	
Ethylbenzene	ug/l	20	19.23	96	85-117	
Toluene	ug/l	20	19.89	100	87-117	
Xylene (Total)	ug/l	60	60.51	101	85-119	
a,a,a-Trifluorotoluene (S)				98	83-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 605020627 605020635

Parameter	Units	605018779	Spike	MS	MSD	MS	MSD	% Rec	Max	Footnotes
		Result	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	
Benzene	ug/l	0	20.00	20.74	19.64	104	98	82-123	5	10
Ethylbenzene	ug/l	0.6828	20.00	19.32	18.37	93	88	84-118	5	10
Toluene	ug/l	0.1304	20.00	20.07	19.08	100	95	82-117	5	10
Xylene (Total)	ug/l	0.5255	60.00	61.29	58.45	101	96	84-121	5	13
a,a,a-Trifluorotoluene (S)						96	99	83-115		

REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6057615
Client Project ID: SJB-GW/ ZAC18E

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines, unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

LCS(D) Laboratory Control Sample (Duplicate)
MS(D) Matrix Spike (Duplicate)
DUP Sample Duplicate
ND Not detected at or above adjusted reporting limit
NC Not Calculable
J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
RPD Relative Percent Difference
(S) Surrogate

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.

9608 Loiret Blvd.

Lenexa, KS 66219

Phone: 913.599.5665

Fax: 913.599.1759

June 25, 2002

Mr. Jim Struhs
MILE HIGH ENVIRONMENTAL
187 C.R. 4980
Bloomfield, NM 87413

RE: Lab Project Number: 6059940
Client Project ID: ZAC

Dear Mr. Struhs:

Enclosed are the analytical results for sample(s) received by the laboratory on June 20, 2002. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report please feel free to contact me.

Sincerely,



Mary Jane Walls
mjwalls@pacelabs.com
Project Manager

Kansas/NELAP Certification Number E-10116

Enclosures

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Pace Analytical Services, Inc.

9608 Loiret Blvd.

Lenexa, KS 66219

Phone: 913.599.5665

Fax: 913.599.1759

Lab Project Number: 6059940

Client Project ID: ZAC

Project Sample Number	Sample Number	Client Sample ID	Matrix	Date Collected	Date Received
6059940-001	605211978	112315JUN02	Water	06/15/02 11:23	06/20/02 09:00
6059940-002	605211986	120415JUN02	Water	06/15/02 12:04	06/20/02 09:00
6059940-003	605211994	115715JUN02	Water	06/15/02 11:57	06/20/02 09:00
6059940-004	605212000	121115JUN02	Water	06/15/02 12:11	06/20/02 09:00
6059940-005	605212018	114715JUN02	Water	06/15/02 11:47	06/20/02 09:00
6059940-006	605212026	113315JUN02	Water	06/15/02 11:33	06/20/02 09:00

REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6059940

Client Project ID: ZAC

Lab Sample No: 605211978
Client Sample ID: 112315JUN02Project Sample Number: 6059940-001
Matrix: WaterDate Collected: 06/15/02 11:23
Date Received: 06/20/02 09:00

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles								
Aromatic Volatile Organics	Method: EPA 8021							
Benzene	ND	ug/l	2.0	06/24/02 20:11 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	06/24/02 20:11 SHF		100-41-4		
Toluene	ND	ug/l	2.0	06/24/02 20:11 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	06/24/02 20:11 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	95	%		06/24/02 20:11 SHF		98-08-8		

Date: 06/25/02

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REPORT OF LABORATORY ANALYSISThis report shall not be reproduced, except in full,
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Lab Project Number: 6059940
Client Project ID: ZAC

Lab Sample No: 605211986
Client Sample ID: 120415JUN02

Project Sample Number: 6059940-002
Matrix: Water
Date Collected: 06/15/02 12:04
Date Received: 06/20/02 09:00

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles								
Aromatic Volatile Organics	Method: EPA 8021							
Benzene	ND	ug/l	2.0	06/24/02 20:41 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	06/24/02 20:41 SHF		100-41-4		
Toluene	ND	ug/l	2.0	06/24/02 20:41 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	06/24/02 20:41 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	87	%		06/24/02 20:41 SHF		98-08-8		

Date: 06/25/02

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6059940
Client Project ID: ZAC

Lab Sample No: 605211994
Client Sample ID: 115715JUN02

Project Sample Number: 6059940-003
Matrix: Water

Date Collected: 06/15/02 11:57
Date Received: 06/20/02 09:00

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles								
Aromatic Volatile Organics		Method: EPA 8021						
Benzene	ND	ug/l	2.0	06/24/02 21:10 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	06/24/02 21:10 SHF		100-41-4		
Toluene	ND	ug/l	2.0	06/24/02 21:10 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	06/24/02 21:10 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	93	%		06/24/02 21:10 SHF		98-08-8		

Date: 06/25/02

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6059940

Client Project ID: ZAC

Lab Sample No: 605212000

Project Sample Number: 6059940-004

Date Collected: 06/15/02 12:11

Client Sample ID: 121115JUN02

Matrix: Water

Date Received: 06/20/02 09:00

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles								
Aromatic Volatile Organics	Method: EPA 8021							
Benzene	ND	ug/l	2.0	06/24/02 21:39 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	06/24/02 21:39 SHF		100-41-4		
Toluene	ND	ug/l	2.0	06/24/02 21:39 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	06/24/02 21:39 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	94	%		06/24/02 21:39 SHF		98-08-8		

Date: 06/25/02

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6059940

Client Project ID: ZAC

Lab Sample No: 605212018
Client Sample ID: 114715JUN02

Project Sample Number: 6059940-005
Matrix: Water

Date Collected: 06/15/02 11:47
Date Received: 06/20/02 09:00

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles								
Aromatic Volatile Organics	Method: EPA 8021							
Benzene	ND	ug/l	2.0	06/24/02 22:08 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	06/24/02 22:08 SHF		100-41-4		
Toluene	ND	ug/l	2.0	06/24/02 22:08 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	06/24/02 22:08 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	94	%		06/24/02 22:08 SHF		98-08-8		

Date: 06/25/02

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6059940
Client Project ID: ZAC

Lab Sample No: 605212026
Client Sample ID: 113315JUN02

Project Sample Number: 6059940-006
Matrix: Water

Date Collected: 06/15/02 11:33
Date Received: 06/20/02 09:00

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles								
Aromatic Volatile Organics	Method: EPA 8021							
Benzene	ND	ug/l	2.0	06/25/02 00:05 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	06/25/02 00:05 SHF		100-41-4		
Toluene	ND	ug/l	2.0	06/25/02 00:05 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	06/25/02 00:05 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	94	%		06/25/02 00:05 SHF		98-08-8		

Date: 06/25/02

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PARAMETER FOOTNOTES

ND	Not detected at or above adjusted reporting limit
NC	Not Calculable
J	Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL	Adjusted Method Detection Limit
(S)	Surrogate

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Pace Analytical Services, Inc.

9608 Loiret Blvd.

Lenexa, KS 66219

Phone: 913.599.5665

Fax: 913.599.1759

Lab Project Number: 6059940

Client Project ID: ZAC

QC Batch: 124870

Analysis Method: EPA 8021

QC Batch Method: EPA 8021

Analysis Description: Aromatic Volatile Organics

Associated Lab Samples: 605211978 605211986 605211994 605212000 605212018
 605212026

METHOD BLANK: 605219237

Associated Lab Samples: 605211978 605211986 605211994 605212000 605212018 605212026

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Benzene	ug/l	ND	2.0	
Ethylbenzene	ug/l	ND	2.0	
Toluene	ug/l	ND	2.0	
Xylene (Total)	ug/l	ND	5.0	
a,a,a-Trifluorotoluene (S)	%	98		

LABORATORY CONTROL SAMPLE: 605219245

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Footnotes
Benzene	ug/l	20.00	20.29	101	84-122	
Ethylbenzene	ug/l	20.00	19.37	97	85-117	
Toluene	ug/l	20.00	19.32	97	87-117	
Xylene (Total)	ug/l	60.00	56.87	95	85-119	
a,a,a-Trifluorotoluene (S)				98	83-115	1

Date: 06/25/02

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QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines, unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

- LCS(D) Laboratory Control Sample (Duplicate)
- MS(D) Matrix Spike (Duplicate)
- DUP Sample Duplicate
- ND Not detected at or above adjusted reporting limit
- NC Not Calculable
- J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
- MDL Adjusted Method Detection Limit
- RPD Relative Percent Difference
- (S) Surrogate
- [1] The Matrix Spike and Matrix Spike Duplicate (MS/MSD) compound recovery information is not available, due to interference from the sample matrix. Acceptable recovery of the LCS indicates the analytical system is in control.

REPORT OF LABORATORY ANALYSIS

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October 11, 2002

Mr. Jim Struhs
MILE HIGH ENVIRONMENTAL
187 C.R. 4980
Bloomfield, NM 87413

RE: Lab Project Number: 6063379
Client Project ID: ZAC

Dear Mr. Struhs:

Enclosed are the analytical results for sample(s) received by the laboratory on October 2, 2002. Results reported herein conform to the most current NELAP standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report please feel free to contact me.

Sincerely,



Mary Jane Walls
mjwalls@pacelabs.com
Project Manager

Kansas/NELAP Certification Number E-10116

Enclosures

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

Lab Project Number: 6063379
Client Project ID: ZAC

Project	Sample				
<u>Sample Number</u>	<u>Number</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>
6063379-001	605485952	125629SEP02	Water	09/29/02 12:56	10/02/02 10:15
6063379-002	605485960	130429SEP02	Water	09/29/02 13:04	10/02/02 10:15
6063379-003	605485978	131329SEP02	Water	09/29/02 13:13	10/02/02 10:15
6063379-004	605485986	132429SEP02	Water	09/29/02 13:24	10/02/02 10:15
6063379-005	605485994	133329SEP02	Water	09/29/02 13:33	10/02/02 10:15
6063379-006	605486000	134029SEP02	Water	09/29/02 13:40	10/02/02 10:15

REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6063379
Client Project ID: ZAC

Lab Sample No: 605485952
Client Sample ID: 125629SEP02

Project Sample Number: 6063379-001
Matrix: Water

Date Collected: 09/29/02 12:56
Date Received: 10/02/02 10:15

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles									
Aromatic Volatile Organics	Method: EPA 8021								
Benzene	ND	ug/l	2.0	1.0	10/10/02 00:39 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	1.0	10/10/02 00:39 SHF		100-41-4		
Toluene	ND	ug/l	2.0	1.0	10/10/02 00:39 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	1.0	10/10/02 00:39 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	102	%		1.0	10/10/02 00:39 SHF		98-08-8		

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Lab Project Number: 6063379
Client Project ID: ZAC

Lab Sample No: 605485960
Client Sample ID: 130429SEP02

Project Sample Number: 6063379-002
Matrix: Water

Date Collected: 09/29/02 13:04
Date Received: 10/02/02 10:15

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles									
Aromatic Volatile Organics	Method: EPA 8021								
Benzene	ND	ug/l	2.0	1.0	10/09/02 23:13 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	1.0	10/09/02 23:13 SHF		100-41-4		
Toluene	ND	ug/l	2.0	1.0	10/09/02 23:13 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	1.0	10/09/02 23:13 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	103	%		1.0	10/09/02 23:13 SHF		98-08-8	1	

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Lab Project Number: 6063379
Client Project ID: ZAC

Lab Sample No: 605485978
Client Sample ID: 131329SEP02

Project Sample Number: 6063379-003
Matrix: Water

Date Collected: 09/29/02 13:13
Date Received: 10/02/02 10:15

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles									
Aromatic Volatile Organics	Method: EPA 8021								
Benzene	ND	ug/l	2.0	1.0	10/09/02 23:42 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	1.0	10/09/02 23:42 SHF		100-41-4		
Toluene	ND	ug/l	2.0	1.0	10/09/02 23:42 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	1.0	10/09/02 23:42 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	103	%		1.0	10/09/02 23:42 SHF		98-08-8		

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Lab Project Number: 6063379
Client Project ID: ZAC

Lab Sample No: 605485986
Client Sample ID: 132429SEP02

Project Sample Number: 6063379-004
Matrix: Water

Date Collected: 09/29/02 13:24
Date Received: 10/02/02 10:15

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	RegLmt
GC Volatiles									
Aromatic Volatile Organics	Method: EPA 8021								
Benzene	ND	ug/l	2.0	1.0	10/10/02 00:10 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	1.0	10/10/02 00:10 SHF		100-41-4		
Toluene	ND	ug/l	2.0	1.0	10/10/02 00:10 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	1.0	10/10/02 00:10 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	101	%		1.0	10/10/02 00:10 SHF		98-08-8		

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REPORT OF LABORATORY ANALYSIS

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Lab Project Number: 6063379
Client Project ID: ZAC

Lab Sample No: 605485994
Client Sample ID: 133329SEP02

Project Sample Number: 6063379-005
Matrix: Water

Date Collected: 09/29/02 13:33
Date Received: 10/02/02 10:15

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	ReqLmt
GC Volatiles									
Aromatic Volatile Organics	Method: EPA 8021								
Benzene	ND	ug/l	2.0	1.0	10/09/02 13:05 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	1.0	10/09/02 13:05 SHF		100-41-4		
Toluene	ND	ug/l	2.0	1.0	10/09/02 13:05 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	1.0	10/09/02 13:05 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	93	%		1.0	10/09/02 13:05 SHF		98-08-8		

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Lab Project Number: 6063379
Client Project ID: ZAC

Lab Sample No: 605486000
Client Sample ID: 134029SEP02

Project Sample Number: 6063379-006
Matrix: Water

Date Collected: 09/29/02 13:40
Date Received: 10/02/02 10:15

Parameters	Results	Units	Report Limit	DF	Analyzed	By	CAS No.	Qual	ReqLmt
GC Volatiles									
Aromatic Volatile Organics	Method: EPA 8021								
Benzene	ND	ug/l	2.0	1.0	10/09/02 13:34 SHF		71-43-2		
Ethylbenzene	ND	ug/l	2.0	1.0	10/09/02 13:34 SHF		100-41-4		
Toluene	ND	ug/l	2.0	1.0	10/09/02 13:34 SHF		108-88-3		
Xylene (Total)	ND	ug/l	5.0	1.0	10/09/02 13:34 SHF		1330-20-7		
a,a,a-Trifluorotoluene (S)	104	%		1.0	10/09/02 13:34 SHF		98-08-8		

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REPORT OF LABORATORY ANALYSIS

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PARAMETER FOOTNOTES

Dilution factor shown represents the factor applied to the reported result and reporting limit due to changes in sample preparation, dilution of the extract, or moisture content

- ND Not detected at or above adjusted reporting limit
- NC Not Calculable
- J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
- MDL Adjusted Method Detection Limit
- (S) Surrogate
- [1] The sample pH was checked and found to be greater than 2.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

Lab Project Number: 6063379
Client Project ID: ZAC

QC Batch: 131381 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: Aromatic Volatile Organics
Associated Lab Samples: 605485952 605485960 605485978 605485986

METHOD BLANK: 605503531
Associated Lab Samples: 605485952 605485960 605485978 605485986

Parameter	Units	Blank	Reporting	Footnotes
		Result	Limit	
Benzene	ug/l	ND	2.0	
Ethylbenzene	ug/l	ND	2.0	
Toluene	ug/l	ND	2.0	
Xylene (Total)	ug/l	ND	5.0	
a,a,a-Trifluorotoluene (S)	%	103		

LABORATORY CONTROL SAMPLE: 605503549

Parameter	Units	Spike	LCS	LCS	% Rec	Footnotes
		Conc.	Result	% Rec	Limits	
Benzene	ug/l	20.00	21.31	107	84-122	
Ethylbenzene	ug/l	20.00	20.93	105	85-117	
Toluene	ug/l	20.00	20.98	105	87-117	
Xylene (Total)	ug/l	60.00	64.43	107	85-119	
a,a,a-Trifluorotoluene (S)				102	83-115	

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QUALITY CONTROL DATA

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

Lab Project Number: 6063379
Client Project ID: ZAC

QC Batch: 131386 Analysis Method: EPA 8021
QC Batch Method: EPA 8021 Analysis Description: Aromatic Volatile Organics
Associated Lab Samples: 605485994 605486000

METHOD BLANK: 605503911
Associated Lab Samples: 605485994 605486000

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Benzene	ug/l	ND	2.0	
Ethylbenzene	ug/l	ND	2.0	
Toluene	ug/l	ND	2.0	
Xylene (Total)	ug/l	ND	5.0	
a,a,a-Trifluorotoluene (S)	%	103		

LABORATORY CONTROL SAMPLE: 605503929

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Footnotes
Benzene	ug/l	20.00	21.61	108	84-122	
Ethylbenzene	ug/l	20.00	20.87	104	85-117	
Toluene	ug/l	20.00	21.13	106	87-117	
Xylene (Total)	ug/l	60.00	64.69	108	85-119	
a,a,a-Trifluorotoluene (S)				104	83-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 605504513 605504521

Parameter	Units	605486745 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Footnotes
Benzene	ug/l	2.287	20.00	25.55	24.94	116	113	82-123	2	10	
Ethylbenzene	ug/l	3.369	20.00	24.32	23.44	105	100	84-118	4	10	
Toluene	ug/l	1.479	20.00	22.81	22.12	107	103	82-117	3	10	
Xylene (Total)	ug/l	3.673	60.00	59.58	55.08	93	86	84-121	8	13	
a,a,a-Trifluorotoluene (S)						100	98	83-115			

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Lab Project Number: 6063379
Client Project ID: ZAC

QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines, unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

LCS(D) Laboratory Control Sample (Duplicate)
MS(D) Matrix Spike (Duplicate)
DUP Sample Duplicate
ND Not detected at or above adjusted reporting limit
NC Not Calculable
J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL Adjusted Method Detection Limit
RPD Relative Percent Difference
(S) Surrogate

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