

District I

P.O. Box 198 Hobbs, NM

District II

P.O. Drawer DD Artesia, NM 88211

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

Jerry S. Faust
DEPUTY OIL & GAS INSPECTOR

JUN 24 1997

PIT REMEDIATION AND CLOSURE REPORT

Approved

Operator: Phillips Petroleum Company

Telephone: (505) 599-3400

Address: 5525 Hwy. 64, NBU 3004, Farmington, NM 87401

Facility Or: San Juan 29 - 5 Unit # 35 R (formerly San Juan 29-5 #89)

Well Name

Location: Unit or Qtr/Qtr Sec NESW Sec 34 T 29N R 5W County Rio Arriba

Pit Type: Separator X Dehydrator _____ Other _____

Land Type: BLM _____ State _____ Fee X Other _____

Pit Location: Pit dimensions: Length 43 ft width 22 ft depth 22 ft
(Attach diagram)

Reference: wellhead X other _____

Footage from reference: 55 ft

Direction from reference: 30 Degrees _____ East North X
of
_____ West South _____

Depth to Ground Water: 120 ft _____ Less than 50 feet (20 points)
(vertical distance from _____ 50 ft to 99 feet (10 points)
contaminants to seasonal X Greater than 100 feet (0 points) 0
highwater elevation of
ground water)

Wellhead Protection Area: _____ Yes (20 points)
(less than 200 feet from a private _____ No (0 points) 0
domestic water source, or: less than
1000 feet from all other water sources).

Distance to Surface Water: _____ Less than 200 feet (20 points)
(Horizontal distance to perennial _____ 200 feet to 1000 feet (10 points)
lakes, ponds, rivers, streams, creeks, X Greater than 1000 feet (0 points) 0
irrigation canals and ditches.)

P:\pits\PrrC@.WK3

RANKING SCORE (TOTAL POINTS): 0

RECEIVED
APR 24 1997
OIL CON. DIV.
DIST. 3

Date Remediation Started: 7/1/93 Date Completed: 2/26/97

Excavation X Approx. cubic yards 700

Landfarmed X Insitu Bioremediation _____

Other _____

Remediation Method: Onsite X Offsite _____

(Check all appropriate sections)

General Description of Remedial Action: Based on the initial assessment, soils were excavated to a depth of 19 feet below the original pit bottom. The excavated soils were landfarmed on location. The landfarm tested clean on 12/15/95. The landfarmed soils were then used to fill the excavation. A risk assessment was performed on 2/26/97 with samples received from 35 and 40 feet below the original pit depth. Based on the risk assessment there is little or no risk to human health or environment.

Ground Water Encountered: No X Yes _____ Depth _____

Final Pit:
Closure Sampling:
(if multiple samples,
attach sample results
and diagram of sample
locations and depths)

Sample location The samples were collected from the center of the pit at the bottom of the borings.

Sample depth 40 feet

Sample date 2/26/97

Sample time 12:00

Sample Results

Benzene (ppm) _____

Total BTEX (PPM) _____

Field Headspace (ppm) 1.5

TPH ND

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

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

DATE 4-22-97

PRINTED NAME Bob Wirtanen

SIGNATURE Robert A. Wirtanen

and TITLE Sr. Safety & Environmental Specialist

ENVIROTECH Inc.

5796 US HWY. 64, FARMINGTON, NM 87401
(505) 632-0615

PIT NO: PA012

C.D.C. NO: 2760

FIELD REPORT: SITE ASSESSMENT

JOB No: 93163
PAGE No: 1 of 1

PROJECT: PIT ASSESSMENT
CLIENT: PHILLIPS PETROLEUM
CONTRACTOR: ENVIROTECH INC.
EQUIPMENT USED: JOB EXTENDAHOE

DATE STARTED: 7/1/93
DATE FINISHED: 7/1/93
ENVIRO. SPC: REO
OPERATOR: Cimarron
ASSISTANT:

LOCATION: LEASE: San Juan 29-5 WELL: # 89 QD: 2300' FSL, 1830' FWL (K)
SEC: 34 TWP: 29N RNG: 5W PM: NM CNTY: R.A. ST: NM PIT: Sep.

LAND USE: Range - Fee

SURFACE CONDITIONS: Earthen Pit - Clean Surface

PIT CENTER IS LOCATED APPROXIMATELY 55 FEET N. 30° W OF WELLHEAD.

CLOSURE STD: <100 ppm TPH

T1 : Black, silty sand to bottom with some odor
Water Well located ~ 300' to west

RANKING SCORE: 20

Field TPH 1:1= (622x2=1244)

TEST HOLE LOGS

SAMPLE INVENTORY		
SMPL ID	SMPL TYPE	LABORATORY ANALYSIS
T1@18'	Soil	1244ppm
T1@18'	Soil	BTEX

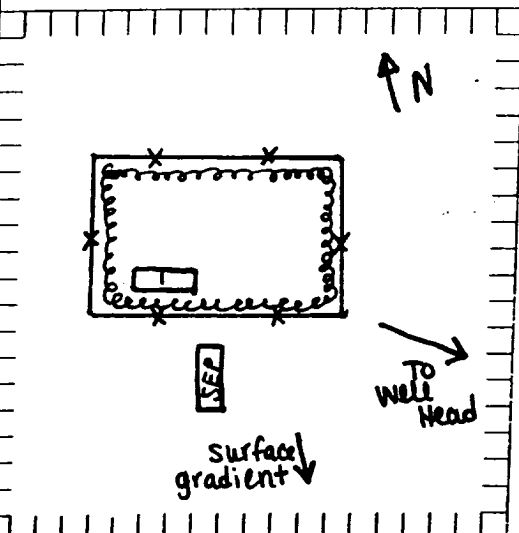
SCALE



25' x 42'

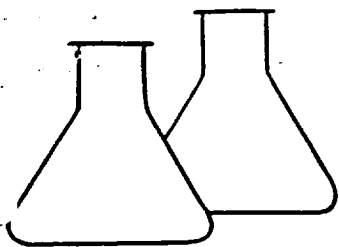
0 10 20 FEET

SITE DIAGRAM



TH#: 1			TH#:			TH#:			TH#:		
SOIL TYPE	SMPL TYPE	QVM/TPH	SOIL TYPE	SMPL TYPE	QVM/TPH	SOIL TYPE	SMPL TYPE	QVM/TPH	SOIL TYPE	SMPL TYPE	QVM/TPH
GD											
2	Pit bottom										
4	Black and										
6	SM										
8	some odor										
10											
12	SM GRB	472									
14											
16											
18	SM GRB	512									
20	TD = 18'										
22											

SOIL TYPE: C - Clay, M - Sil, S - Sand, G - Gravel Plasticity: L - None, H - Plastic Grading: P - Poorly, W - Well



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

FIELD MODIFIED EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Phillips	Project #:	93163
Sample ID:	T1 @ 18' bgs	Date Analyzed:	07-01-93
Project Location:	San Juan 29-5 Unit 89	Date Reported:	07-06-93
Laboratory Number:	GAC0088	Sample Matrix:	Soil

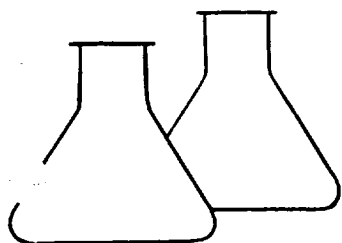
Parameter -----	Result, mg/kg -----	Detection Limit, mg/kg -----
Petroleum Hydrocarbons	1200	10

Method: Modified Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Separator Pit PA012

R. E. O'Neil
Analyst

Maris D. Young
Review



ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020 AROMATIC VOLATILE ORGANICS

Client:	Phillips	Project #:	93163
Sample ID:	T 1 @ 18'	Date Reported:	07-06-93
Laboratory Number:	5561	Date Sampled:	07-01-93
Sample Matrix:	Soil	Date Received:	07-01-93
Preservative:	Cool	Date Extracted:	07-02-93
Condition:	Cool & Intact	Date Analyzed:	07-02-93
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	87	13.0
Toluene	235	32.6
Ethylbenzene	3,100	19.5
p,m-Xylene	2,620	39.1
o-Xylene	1,610	19.5

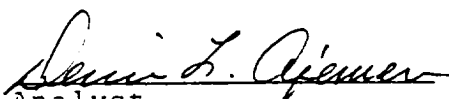
SURROGATE RECOVERIES:	Parameter	Percent Recovery
	Trifluorotoluene	119 %
	Bromofluorobenzene	110 %

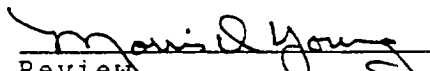
Method: Method 5030, Purge-and-Trap, Test Methods for
Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

Method 8020, Aromatic Volatile Organics, Test Methods
for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: San Juan 29-5 #89 Separator Pit PA012


Analyst


Review

Don Juan 27-5 #89



Cathodic Line

2'

fence

Middle bottom sampling 20'-21'

X Ovm = 549

9 1/2'

22'
deep

Ovm Reading

1478 ppm

14:46

Cathodic Line
prevents excavation
West any further
(Lab Sample)

South pit bottom sampling 22'

X^a

X^a

Ovm = 1379

fence

Ovm Reading
0.0 units

18'

Clean sand; silty, clay loam soil.
No discoloration

8'

R.F.I.O.

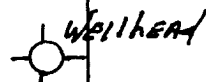
Ovm PID Reading
1251 ppm

Dark sandy; silty
clay loam soil
(Lab Sample)



22-141' 50 SHEETS
22-142 100 SHEETS
22-144 200 SHEETS

Land farm South Side of Location



 Closure Hydro Carbon Measurements
 San Juan 29-5 #89
 Earthen Separator Pit

Location	Benzene/BTEX 8020 (ppm)	TPH 418.1 (ppm)	PID (ppm)
East Wall	0.06/8.6	2,059	0.0
West Wall	0.02/15.6	2,347	
South Wall	-----	-----	
North Wall	-----	-----	
Bottom	0.03/7.4		
Landfarm (20-pt. composite)	<0.02/.25	732	(242 ppm 8015 Modified)

OFF: (505) 325-8786



LAB: (505) 325-5667

QUALITY ASSURANCE REPORT
for EPA Method 8020

Date Analyzed: 22-Aug-95

Internal QC No.: 0419-STD

Surrogate QC No.: 0420-STD

Reference Standard QC No.: 0355-STD

Method Blank

Analyte	Amount
Average Amount of All Analytes In Blank	<0.2ppb

Calibration Check

Analyte	Units of Measure	*True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20	19	4	15%
Toluene	ppb	20	19	7	15%
Ethylbenzene	ppb	20	18	9	15%
m,p-Xylene	ppb	40	38	5	15%
o-Xylene	ppb	20	18	9	15%

Matrix Spike

Analyte	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	63	64	(39-150)	2	20%
Toluene	68	67	(46-148)	0	20%
Ethylbenzene	73	73	(32-160)	2	20%
m,p-Xylene	71	65	(35-145)	1	20%
o-Xylene	69	73	(35-145)	7	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limits	(70-130)	
7854-3250	89	

S1: Fluorobenzene

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- THE QUALITY ASSURANCE REPORT -

OFF: (505) 325-8786



LAB: (505) 325-5667

TOTAL PETROLEUM HYDROCARBONS

Attn: *Jon Little*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: 23-Aug-95
COC No.: 3250
Sample No. 7854
Job No. 4-1040

Project Name: *Lambda Pit (Phillips)*
Project Location: *21' - 22' Composite from Bottom of Pit*
Sampled by: JL Date: 21-Aug-95 Time: 13:33
Analyzed by: DC Date: 22-Aug-95
Type of Sample: *Soil*

Laboratory Analysis

Laboratory Identification	Sample Identification	Total Petroleum Hydrocarbons
7854-3250	<i>Lambda Pit (Phillips)</i> <i>21' - 22' Composite from Bottom of Pit</i>	4,265 mg/kg

Method - EPA Method 418.1 Total Petroleum Hydrocarbons

Approved by: *Alana Baudet*
Date: *8-23-95*

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OFF: (505) 325-8786



LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn: *Jon Little*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: *23-Aug-95*
COC No.: *3250*
Sample No. *7854*
Job No. *4-1040*

Project Name: *Lambda Pit (Phillips)*
Project Location: *21' - 22' Composite from Bottom of Pit*
Sampled by: *JL* Date: *21-Aug-95* Time: *13:33*
Analyzed by: *GB* Date: *22-Aug-95*
Type of Sample: *Soil*

Aromatic Volatile Organics

Component	Measured Concentration ug/kg	Detection Limit Concentration ug/kg
<i>Benzene</i>	<i>32.8</i>	<i>0.2</i>
<i>Toluene</i>	<i>1359.9</i>	<i>0.2</i>
<i>Ethylbenzene</i>	<i>533.2</i>	<i>0.2</i>
<i>m,p-Xylene</i>	<i>3864.3</i>	<i>0.2</i>
<i>o-Xylene</i>	<i>1620.3</i>	<i>0.2</i>
	<i>TOTAL 7410.5 ug/kg</i>	

ND - Not Detectable

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

Approved by: *Glenn Bawert*
Date: *8-23-95*

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OFF: (505) 325-8786



LAB: (505) 325-5667

TOTAL PETROLEUM HYDROCARBONS

Attn: *Jon Little*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: *23-Aug-95*
COC No.: *3250*
Sample No. *7855*
Job No. *4-1040*

Project Name: *Lambda Pit (Phillips)*
Project Location: *East Side Wall of Pit*
Sampled by: *JL*
Analyzed by: *DC*
Type of Sample: *Soil*

Date: *21-Aug-95* Time: *13:16*
Date: *22-Aug-95*

Laboratory Analysis

Laboratory Identification	Sample Identification	Total Petroleum Hydrocarbons
<i>7855-3250</i>	<i>Lambda Pit (Phillips)</i> <i>East Side Wall of Pit</i>	<i>2,059 mg/kg</i>

Method - EPA Method 418.1 Total Petroleum Hydrocarbons

Approved by: *Alaina Bartlett*
Date: *8-23-95*

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OFF: (505) 325-8786



LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn: *Jon Little*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: *23-Aug-95*
COC No.: *3250*
Sample No. *7855*
Job No. *4-1040*

Project Name: *Lambda Pit (Phillips)*
Project Location: *East Side Wall of Pit*
Sampled by: *JL*
Analyzed by: *GB*
Type of Sample: *Soil*

Date: *21-Aug-95* Time: *13:16*
Date: *22-Aug-95*

Aromatic Volatile Organics

Component	Measured Concentration ug/kg	Detection Limit Concentration ug/kg
<i>Benzene</i>	<i>60.5</i>	<i>0.2</i>
<i>Toluene</i>	<i>1437.7</i>	<i>0.2</i>
<i>Ethylbenzene</i>	<i>857.4</i>	<i>0.2</i>
<i>m,p-Xylene</i>	<i>4524.5</i>	<i>0.2</i>
<i>o-Xylene</i>	<i>1675.4</i>	<i>0.2</i>
	TOTAL <i>8555.6 ug/kg</i>	

ND - Not Detectable

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

Approved by: *Alvin Barred*
Date: *8-23-95*

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OFF: (505) 325-8786



LAB: (505) 325-5667

TOTAL PETROLEUM HYDROCARBONS

Attn: *Jon Little*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: *23-Aug-95*
COC No.: *3250*
Sample No. *7856*
Job No. *4-1040*

Project Name: *Lambda Pit (Phillips)*
Project Location: *West Side Wall*
Sampled by: *JL*
Analyzed by: *DC*
Type of Sample: *Soil*

Date: *21-Aug-95* Time: *11:42*
Date: *22-Aug-95*

Laboratory Analysis

Laboratory Identification	Sample Identification	Total Petroleum Hydrocarbons
<i>7856-3250</i>	<i>Lambda Pit (Phillips) West Side Wall</i>	<i>2,347 mg/kg</i>

Method - EPA Method 418.1 Total Petroleum Hydrocarbons

Approved by: *Alma Bauder*
Date: *8-23-95*

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- Environmental Analysis & Consulting, Inc. -

OFF: (505) 325-8786



LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn: *Jon Little*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: *23-Aug-95*
COC No.: *3250*
Sample No. *7856*
Job No. *4-1040*

Project Name: *Lambda Pit (Phillips)*
Project Location: *West Side Wall*
Sampled by: *JL*
Analyzed by: *GB*
Type of Sample: *Soil*

Date: *21-Aug-95* Time: *11:42*
Date: *22-Aug-95*

Aromatic Volatile Organics

Component	Measured Concentration ug/kg	Detection Limit Concentration ug/kg
<i>Benzene</i>	<i>23.6</i>	<i>0.2</i>
<i>Toluene</i>	<i>3350.1</i>	<i>0.2</i>
<i>Ethylbenzene</i>	<i>1404.3</i>	<i>0.2</i>
<i>m,p-Xylene</i>	<i>7471.7</i>	<i>0.2</i>
<i>o-Xylene</i>	<i>3368.9</i>	<i>0.2</i>
TOTAL <i>15618.6 ug/kg</i>		

ND - Not Detectable

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

Approved by: *Shirley Bantlett*
Date: *8-23-95*

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OFF: (505) 325-8786



LAB: (505) 325-5667

TOTAL PETROLEUM HYDROCARBONS

Attn: *Jon Little*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: *23-Aug-95*
COC No.: *3250*
Sample No. *7857*
Job No. *4-1040*

Project Name: *Lambda Pit (Phillips)*
Project Location: *10' East of Pit Fence 22' Depth*
Sampled by: *JL* Date: *21-Aug-95* Time: *14:23*
Analyzed by: *DC* Date: *22-Aug-95*
Type of Sample: *Soil*

Laboratory Analysis

Laboratory Identification	Sample Identification	Total Petroleum Hydrocarbons
<i>7857-3250</i>	<i>Lambda Pit (Phillips)</i> <i>10' East of Pit Fence 22' Depth</i>	<i>13,050 mg/kg</i>

Method - EPA Method 418.1 Total Petroleum Hydrocarbons

Approved by: *Alana Baudet*
Date: *8-23-95*

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Environmental Protection Industries, Inc. 10/1/94

OFF: (505) 325-8786



LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn: *Jon Little*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: *23-Aug-95*
COC No.: *3250*
Sample No. *7857*
Job No. *4-1040*

Project Name: *Lambda Pit (Phillips)*
Project Location: *10' East of Pit Fence 22' Depth*
Sampled by: *JL* Date: *21-Aug-95* Time: *14:23*
Analyzed by: *GB* Date: *22-Aug-95*
Type of Sample: *Soil*

Aromatic Volatile Organics

Component	Measured Concentration ug/kg	Detection Limit Concentration ug/kg
<i>Benzene</i>	<i>21.2</i>	<i>0.2</i>
<i>Toluene</i>	<i>2249.6</i>	<i>0.2</i>
<i>Ethylbenzene</i>	<i>1310.0</i>	<i>0.2</i>
<i>m,p-Xylene</i>	<i>12120.9</i>	<i>0.2</i>
<i>o-Xylene</i>	<i>2744.0</i>	<i>0.2</i>
TOTAL <i>18445.5 ug/kg</i>		

ND - Not Detectable

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

Approved by: *Maria Bardet*
Date: *8-23-95*

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CHAIN OF CUSTODY RECORD

3250

Date: 8-21-95

Page 1 of 1

657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

Purchase Order No.:		Job No. 4-1040	
Name		Title	
Company Cambola P.H. (Phillips)		Company	
Address		Mailing Address	
City, State, Zip		City, State, Zip	
Telephone No.		Telefax No.	
Sampling Location: Phillips P.H.		ANALYSIS REQUESTED	
Sampler: Jon Little			
REPORT TO RESULTS TO		Number of Containers	
SAMPLE IDENTIFICATION		LAB ID	
DATE		TIME	
PRES.			
Soil Sample 21-22' deep comp. bottom pit		8-21 13:33 Soil 4°C	
" East sidewall of Pit		8-21 13:16 Soil 4°C	
" West of Pit ^{side} wall		8-21 11:42 Soil 4°C	
" 10' East of Pit fence 22' depth		8-21 14:23 Soil 4°C	
Relinquished by: Jon Little		Date/Time 8-21-95 17:38	
Relinquished by:		Date/Time	
Relinquished by:		Date/Time	
Method of Shipment:		Date/Time	
Authorized by: Jon Little		Date 8-21-95	
(Client Signature Must Accompany Request)			
Rush		24-48 Hours	
10 Working Days		Special Instructions:	
Received by:		Date/Time 8/21/95 1734	
Received by:		Date/Time	
Received by:		Date/Time	
Pink - Sampler		Yellow - LAB	
White - On Site		Goldenrod - Client	

OFF: (505) 325-8786



LAB: (505) 325-5667

TOTAL PETROLEUM HYDROCARBONS

Attn: *Jon Little*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: 18-Sep-95
COC No.: 3292
Sample No. 8243
Job No. 4-1040

Project Name: *Phillips Petroleum - 29-5 #89 Landfarm (Lambda Pit)*
Project Location: *9pt. Composite @ 6-8" depth*
Sampled by: *JL* Date: 15-Sep-95 Time: 15:18
Analyzed by: *BV* Date: 18-Sep-95
Type of Sample: *Soil*

Laboratory Analysis

Laboratory Identification	Sample Identification	Total Petroleum Hydrocarbons
8243-3292	<i>Phillips Petroleum - 29-5 #89 Landfarm (Lambda Pit)</i> <i>9pt. Composite @ 6-8" depth</i>	2,187 mg/kg

Method - EPA Method 418.1 Total Petroleum Hydrocarbons

Approved by: *[Signature]*

Date: *9/18/95*

P. O. BOX 2606 • FARMINGTON, NM 87499

657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

Distribution: White - On Site	Yellow - LAB	Pink - Sampler	Goldenrod - Client
-------------------------------	--------------	----------------	--------------------

OFF: (505) 325-8786



LAB: (505) 325-5667

TOTAL PETROLEUM HYDROCARBONS

Attn: *Bill Vorkink*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: 12-Dec-95
COC No.: 3726
Sample No. 9593
Job No. 2-1000

Project Name: *Lambda Project*
Project Location: *Phillips Landfarm Composite*
Sampled by: BV Date: 8-Dec-95 Time: 10:50
Analyzed by: BV Date: 11-Dec-95
Type of Sample: *Soil*

Laboratory Analysis

Laboratory Identification	Sample Identification	Total Petroleum Hydrocarbons
9593-3726	<i>Lambda Project</i> <i>Phillips Landfarm Composite</i>	732 mg/kg

Quality Assurance Report

Laboratory Identification	Analyzed Value	Acceptable Range	Units of Measure
<i>Laboratory Fortified Blank Soil - QCBS1</i>	39	22 - 46	mg/kg
<i>Laboratory Fortified Spike Soil - QCSS1</i>	922	828 - 1024	mg/kg

Method - EPA Method 418.1 Total Petroleum Hydrocarbons

Approved by: *Ja4*
Date: 12/12/95

P. O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

CHAIN OF CUSTODY RECORD

3726

Page 7 of 7

Date: 12/11/95

657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

[illegible]

OFF: (505) 325-8786



LAB: (505) 325-5667

QUALITY ASSURANCE REPORT
for EPA Method 8020

Date Analyzed: 14-Dec-95

Internal QC No.: 0419-STD

Surrogate QC No.: 0420-STD

Reference Standard QC No.: 0355-STD

Method Blank

Analyte	Result	Units of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

Analyte	Units of Measure	True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20.0	20.3	2	15%
Toluene	ppb	20.0	20.0	0	15%
Ethylbenzene	ppb	20.0	19.2	4	15%
m,p-Xylene	ppb	40.0	39.2	2	15%
o-Xylene	ppb	20.0	18.9	5	15%

Matrix Spike

Analyte	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	109	121	(39-150)	7	20%
Toluene	91	91	(46-148)	1	20%
Ethylbenzene	90	93	(32-160)	2	20%
m,p-Xylene	93	97	(35-145)	2	20%
o-Xylene	92	98	(35-145)	5	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovery	(70-130)	
9619-3736	80	

S1: Fluorobenzene

P. O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-8786



LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn: *Bill Vorkink*
Company: *On Site Technologies, Ltd.*
Address: *657 W. Maple*
City, State: *Farmington, NM 87401*

Date: *14-Dec-95*
COC No.: *3736*
Sample No. *9619*
Job No. *2-1000*

Project Name: *Lambda Project*
Project Location: *Phillips Lambda Pit Stockpile - 10pt. Composite*
Sampled by: *DA* Date: *13-Dec-95* Time: *13:16*
Analyzed by: *DC* Date: *14-Dec-95*
Type of Sample: *Soil*

Aromatic Volatile Organics

Component	Result	Units of Measure	Detection Limit	Units of Measure
Benzene	<0.2	ug/kg	0.2	ug/kg
Toluene	<0.2	ug/kg	0.2	ug/kg
Ethylbenzene	24.1	ug/kg	0.2	ug/kg
m,p-Xylene	149.0	ug/kg	0.2	ug/kg
o-Xylene	77.8	ug/kg	0.2	ug/kg
TOTAL		250.8		ug/kg

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

Approved by: *DA*

Date: *12/14/95*

P. O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH ENVIRONMENTAL RESPONSIBILITY

OFF: (505) 325-8786



LAB: (505) 325-5667

TOTAL PETROLEUM HYDROCARBONS

Attn: *Bill Vorkink*
 Company: *On Site Technologies, Ltd.*
 Address: *657 W. Maple*
 City, State: *Farmington, NM 87401*

Date: *15-Dec-95*
 COC No.: *3736*
 Sample No. *9619*
 Job No. *2-1000*

Project Name: *Lambda Project*
 Project Location: *Phillips Lambda Pit Stockpile - 10pt. Composite*
 Sampled by: *DA* Date: *13-Dec-95* Time: *13:16*
 Analyzed by: *DC* Date: *15-Dec-95*
 Type of Sample: *Soil*

Laboratory Analysis

Analyte	Result	Units of Measure	Detection Limit	Units of Measure
Gasoline Range (C5 - C9)	6.7	mg/kg	5.0	mg/kg
Diesel Range (C10 - C28)	234.8	mg/kg	5.0	mg/kg
	TOTAL	241.5		mg/kg

Quality Assurance Report

GRO QC No.: *0447-STD*
 DRO QC No.: *0446-STD*

Calibration Check

Analyte	Method Blank	Units of Measure	True Value	Analyzed Value	% Diff	Limit
Gasoline Range (C5 - C9)	< 50	ppb	1,350	1,356	0.4	15%
Diesel Range (C10 - C28)	< 5	ppm	2,000	1,978	1.1	15%

Matrix Spike

Analyte	1- Percent Recovered	2- Percent Recovered	Limit	%RSD	Limit
Gasoline Range (C5-C9)	97	100	(70-130)	2	20%
Diesel Range (C10-C28)	102	111	(70-130)	6	20%

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

Approved by: *[Signature]*Date: *12/15/95*

P. O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY SERVING THE INDUSTRY WITH THE ENVIRONMENT

CHAIN OF CUSTODY RECORD

3736

Date: 12-13-95Page 1 of 1

TECHNOLOGIES, LTD.  657 W. Maple • P. O. Box 2606 • Farmington NM 87499
LAB: (505) 325-5667 • FAX: (505) 325-6256

[illegible]

Distribution:	White -- On Site	Yellow -- LAB	Pink -- Sampler	Goldenrod -- Client
---------------	------------------	---------------	-----------------	---------------------

Overview of Pit Location and Sampling :			
Location : San Juan 29 - 5 # 35 R (SJ 29-5#89) Quad : "K" Section : 34 Township: 29N Range: 5W			
Pit : Abandoned Separator Reference : 55' N 30' W From Wellhead Pit Size : 0	Sample #	Location	TPH
	1	bh1@20ft	2
	2	bh1@40ft	1.5
	3	bh2@25ft	390
	4	bh2@35ft	254
	5		
	6		
	7		
	8		
	9		
	10		
	11		
12			
Depth to Groundwater : 120'		Soil Type : Brown, Clayey Silt	
Ranking Score: 0		Bedrock Encountered : No	
Closure Standard : 5000 ppm		Groundwater Encountered : No	
Comments : Pit backfilled with landfill material			
Bore Hole # 1 0 to 40' : Soil is brown, clayey silt, No hydrocarbon odor is apparent.			
Bore Hole # 2 0 to 15' : Soil is moist clayey silt, with No hydrocarbon odor or staining.			
15' to 30' : Soil has some gray staining, with some hydrocarbon odor.			
30' to 35' : No staining or odor to soil.			
Sample # 2 : Bore Hole # 1 @ 40 ft. sent to IML Labs for TPH (8015) analysis.			
Sample # 4 : Bore Hole # 2 Sent to IML Labs for BTEX (8020) and TPH(8015) analysis			
Bore Holes were backfilled with well cuttings and Bentonite.			

Overview of Pit Location and Sampling :																																																																
	<table border="1"> <thead> <tr> <th>Depth (ft)</th> <th>Bore # 1</th> <th>Bore # 2</th> </tr> </thead> <tbody> <tr><td>2</td><td>Moist</td><td>Moist</td></tr> <tr><td>4</td><td></td><td>Clayey</td></tr> <tr><td>6</td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td></tr> <tr><td>12</td><td></td><td></td></tr> <tr><td>14</td><td></td><td></td></tr> <tr><td>16</td><td>Silt</td><td></td></tr> <tr><td>18</td><td></td><td></td></tr> <tr><td>20</td><td></td><td></td></tr> <tr><td>22</td><td>No</td><td></td></tr> <tr><td>24</td><td></td><td></td></tr> <tr><td>26</td><td></td><td>No</td></tr> <tr><td>28</td><td>Odor</td><td>Staining</td></tr> <tr><td>30</td><td></td><td>No</td></tr> <tr><td>32</td><td></td><td>Odor</td></tr> <tr><td>34</td><td>No</td><td></td></tr> <tr><td>36</td><td></td><td></td></tr> <tr><td>38</td><td>Staining</td><td>Total Depth 35 ft</td></tr> <tr><td>40</td><td></td><td>Depth 40 ft</td></tr> </tbody> </table>	Depth (ft)	Bore # 1	Bore # 2	2	Moist	Moist	4		Clayey	6			8			10			12			14			16	Silt		18			20			22	No		24			26		No	28	Odor	Staining	30		No	32		Odor	34	No		36			38	Staining	Total Depth 35 ft	40		Depth 40 ft
Depth (ft)	Bore # 1	Bore # 2																																																														
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28	Odor	Staining																																																														
30		No																																																														
32		Odor																																																														
34	No																																																															
36																																																																
38	Staining	Total Depth 35 ft																																																														
40		Depth 40 ft																																																														

Risk Assessment
San Juan 29-5 #35 R
Formerly San Juan 29-5 # 89

Depth to Groundwater	120'
Distance to Water Source	>1000'
Distance to Surface Water	>1000'
TPH Limit (ppm)	5000

The initial size of the pit was 40'x20'x3' deep. The stained soil was excavated to a final pit size of 43' x 22' x 22' deep. Excavated soil amounted to 682 total cubic yards, and was landfarmed with the addition of hydrocarbon reducing bacteria provided by On-Site Technologies on location.

The separator pit was assessed by Envirotech on 7/1/93. The bottom of the test hole (18 ft. below ground level) had a high TPH reading of 1244 ppm and a BTEX analysis of 0.087 ppm. Benzene and a Total BTEX of 7.652 ppm. Excavation of the walls and bottom were performed by On-Site Technologies. Total BTEX samples ranged from 18.445 ppm to 7.410 ppm. Benzene concentrations ranged from 0.0605 ppm to 0.0021 ppm. Total Petroleum Hydrocarbon concentrations were analyzed with EPA Method 418.1 and varied from 13,050 ppm to 2,059 ppm. Excavated soils were landfarmed on location. The landfarm was tested on 12/13/95 by On-Site Technologies and was found to be within closure guidelines (TPH = 241.5 ppm, a Benzene concentration of <0.0002ppm, and a Total BTEX concentration of 0.2508 ppm). The pit was subsequently filled utilizing the landfarm soil.

On February 26, 1997, Cimarron Oilfield Services, utilizing a Geoprobe, bore two holes to approximately 40 and 35 feet, respectively, in depth for purposes of determining vertical extent of stained soils. Bore hole # 1 was established 55 ft North 30 degrees West of the wellhead. A sample was extracted at a depth of 25 feet and 40 feet. A field headspace was performed on each sample, with recorded values of 2.0 and 1.5 ppm respectively. Bore hole # 2 was established approximately 20 feet North of Bore Hole #1. Two samples were extracted at 25 feet and 35 feet and analyzed utilizing the field headspace method. In Bore Hole #2, the sample at 25 feet recorded a value of 390 ppm. In Bore Hole #2, the sample at 35 feet produced a value of 254 ppm from the OVM. A soil sample from Bore Hole #1, at a depth of 40 feet, was retrieved and submitted to Intermountain Labs for TPH analysis utilizing EPA Method 8015. The results from Bore Hole #1, at a depth of 40 feet provided a TPH concentration of Non-Detect. A soil sample from Bore Hole #2, at a depth of 35 feet, was retrieved and submitted to Intermountain Labs for TPH and BTEX analysis utilizing EPA Method 8015 and EPA Method 8020 respectively. Results provided a Non-Detect concentration of Benzene, a Total BTEX level of 32.130 ppm, and a TPH of 2340 ppm. No groundwater was encountered, and first water was not recorded on the nearby cathodic well until a depth of 120 feet. The bore holes were backfilled with well cuttings and Bentonite.

San Juan 29-5 # 35R
Formerly San Juan 29-5 #89

Having achieved action levels below NMOCD and BLM requirements this pit should be considered to have reached "final closure". Phillips Petroleum has removed and remediated all soils to the extent practical. By filling the excavation, the driving force created by additional fluids will be eliminated. Based on this information and the physical location of the pit, there is little to no risk to human health or environment.

GASOLINE RANGE ORGANICS - GRO

1160 Research Drive
Bozeman, Montana 59718

Client: PHILLIPS PETROLEUM COMPANY

Sample ID: BH #1 @ 40'

Project ID: None Given

Lab ID: B971017

0397G00277

Matrix: Soil

Date Reported: 03/04/97

Date Sampled: 02/26/97

Date Received: 02/28/97

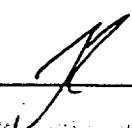
Date Extracted: 02/28/97

Date Analyzed: 02/28/97

Parameter	Result	PQL	Units
Gasoline Range Organics	ND	5.0	mg/kg
Gasoline Range Organics as Gasoline	ND	5.0	mg/kg
Total Purgeable Hydrocarbons	ND	5.0	mg/kg
QUALITY CONTROL - Surrogate Recovery	%	QC Limits	
Bromofluorobenzene	93	40 - 163	

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: GRO - USEPA Method for Determination of Gasoline Range Organics, Rev. 5, February 1992.
WTPH-G Total Petroleum Hydrocarbons Analytical Methods for Soil, Washington State Department of Ecology, Revision 6, 08/18/93.

Analyst SPReviewed 

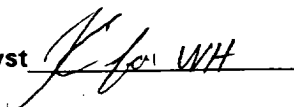
DIESEL RANGE ORGANICS - DRO1160 Research Drive
Bozeman, Montana 59718Client: **PHILLIPS PETROLEUM COMPANY**Sample ID: **BH #1 @ 40'**Project ID: **None Given**Lab ID: **B971017****0397G00277**Matrix: **Soil**Date Reported: **03/10/97**Date Sampled: **02/26/97**Date Received: **02/28/97**Date Extracted: **03/03/97**Date Analyzed: **03/04/97**

Parameter	Result	PQL	Units
Diesel Range Organics	ND	5.0	mg/kg
Diesel Range Organics as Diesel	ND	5.0	mg/kg
Total Extractable Hydrocarbons	ND	5.0	mg/kg

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: DRO - USEPA Method for Determination of Diesel Range Organics. Revision 3, 05/08/92.
WTPH-D Total Petroleum Hydrocarbons Analytical Methods for Soil, Washington State Department of Ecology, Revision 3, October 1991.

Analyst



Reviewed



GASOLINE RANGE ORGANICS - GRO

1160 Research Drive
Bozeman, Montana 59718

Client: PHILLIPS PETROLEUM COMPANY

Sample ID: BH #2 @ 35'

Project ID: None Given

Lab ID: B971018

Matrix: Soil

0397G00278

Date Reported: 03/04/97

Date Sampled: 02/26/97

Date Received: 02/28/97

Date Extracted: 02/28/97

Date Analyzed: 03/03/97

Parameter	Result	PQL	Units
Gasoline Range Organics	430	20	mg/kg
Gasoline Range Organics as Gasoline	430	20	mg/kg
Total Purgeable Hydrocarbons	840	20	mg/kg
QUALITY CONTROL - Surrogate Recovery	%	QC Limits	
Bromofluorobenzene	134	40 - 163	

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: GRO - USEPA Method for Determination of Gasoline Range Organics, Rev. 5, February 1992.
WTPH-G Total Petroleum Hydrocarbons Analytical Methods for Soil, Washington State Department of Ecology, Revision 6, 08/18/93.

Analyst SOReviewed 

DIESEL RANGE ORGANICS - DRO

1160 Research Drive
Bozeman, Montana 59718

Client: PHILLIPS PETROLEUM COMPANY

Sample ID: BH #2 @ 35'

Project ID: None Given

Lab ID: B971018

Matrix: Soil

0397G00278

Date Reported: 03/04/97

Date Sampled: 02/26/97

Date Received: 02/28/97

Date Extracted: 03/03/97

Date Analyzed: 03/03/97

Parameter	Result	PQL	Units
Diesel Range Organics	1300	5.0	mg/kg
Diesel Range Organics as Diesel	1300	5.0	mg/kg
Total Extractable Hydrocarbons	1500	5.0	mg/kg

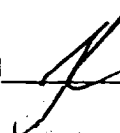
ND - Not Detected at Practical Quantitation Level (PQL)

Reference: DRO - USEPA Method for Determination of Diesel Range Organics. Revision 3, 05/08/92.
WTPH-D Total Petroleum Hydrocarbons Analytical Methods for Soil, Washington State Department of Ecology, Revision 3, October 1991.

Analyst



Reviewed



VOLATILE AROMATIC HYDROCARBONS

Phillips Petroleum Co.

Project ID: SJ 29-5 #35R
Sample ID: BH #2 @35'
Lab ID: 0397G00278
Sample Matrix: soil
Condition: Cool/Intact

Report Date: 03/05/97
Date Sampled: 02/26/97
Date Received: 02/27/97
Date Extracted: NA
Date Analyzed: 03/04/97

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	99.9
Toluene	1,030	99.9
Ethylbenzene	19,000	99.9
m,p-Xylenes	7,450	99.9
o-Xylene	4,650	99.9

ND - Analyte not detected at the stated detection limit.

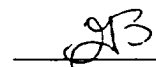
Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	94%	70%-130%

Reference: Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

Comments:



Analyst



Review

Quality Control / Quality Assurance**Known Analysis****BTEX**

Client: Phillips Petroleum Co.
Project: SJ 29-5 #35R

Date Reported: 03/05/97
Date Analyzed: 03/04/97

Known Analysis

Parameter	Found Concentration (ppb)	Known Concentration (ppb)	Percent Recovery	Acceptance Limits
Benzene	4.3	4.0	107%	70-130%
Toluene	4.1	4.0	102%	70-130%
Ethylbenzene	4.0	4.0	99%	70-130%
m + p-Xylene	8.2	8.0	103%	70-130%
o-Xylene	4.1	4.0	103%	70-130%

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	107%	75-125%

Reference: Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

Comments:

Analyst



Reviewed by



VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORTMethod Blank AnalysisSample Matrix:
Lab ID:Extract
MBReport Date: 03/05/97
Date Analyzed: 03/04/97

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	10.0
Toluene	ND	10.0
Ethylbenzene	ND	10.0
m,p-Xylenes	ND	10.0
o-Xylene	ND	10.0

ND - Analyte not detected at the stated detection limit.

Quality Control:

SurrogatePercent RecoveryAcceptance Limits

Bromofluorobenzene

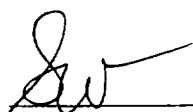
94%

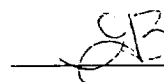
70-130%

Reference:

Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

Comments:



Analyst

Review

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORTMatrix Spike Analysis

Lab ID: MB
Sample Matrix: soil
Condition: Cool/Intact

Report Date: 03/05/97
Date Analyzed: 03/04/97

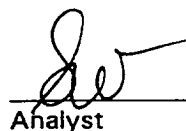
Target Analyte	Spiked Sample Result in ng	Sample result in ng	Spike Added (ng)	% Recovery	Acceptance Limits (%)
Benzene	21.72	0.16	20.0	108%	70-130
Toluene	20.63	0.27	20.0	102%	70-130
Ethylbenzene	20.21	0.00	20.0	101%	70-130
m,p-Xylenes	41.21	0.10	40.0	103%	70-130
o-Xylene	20.80	0.00	20.0	104%	70-130

ND - Analyte not detected at the stated detection limit.
NA - Not applicable or not calculated.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	108%	70 -130%

Reference: Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

Comments:


Analyst



Review

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORTDuplicate AnalysisLab ID: 0397G00282
Sample Matrix: water
Condition: Cool/IntactReport Date: 03/05/97
Date Analyzed: 03/04/97

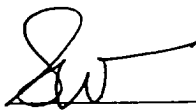
Target Analyte	Duplicate Concentration (ppb)	Original Concentration (ppb)	% Difference
Benzene	ND	ND	NA
Toluene	18.0	18.4	2.2
Ethylbenzene	0.7	0.7	0.0
m,p-Xylenes	ND	ND	NA
o-Xylene	0.8	0.7	13.3

ND - Analyte not detected at the stated detection limit.
NA - Not applicable or not calculated.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	136%*	70 -130%

Reference: Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

Comments: *Surrogate did not recover due to matrix interferences.



Analyst

Review

QUALITY ASSURANCE / QUALITY CONTROL

**LAB QA/QC
GASOLINE RANGE ORGANICS - GRO
METHOD BLANK**

Date Analyzed: 03/03/97
Lab ID: MBS97059
Matrix: Sand
Date Extracted 02/28/97

Parameter	Result	PQL	Units
Gasoline Range Organics	ND	5.0	mg/kg
Gasoline Range Organics as Gasoline	ND	5.0	mg/kg
Total Purgeable Hydrocarbons	ND	5.0	mg/kg

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	99	40 - 163

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst SD

Reviewed 

LAB QA/QC
DIESEL RANGE ORGANICS - DRO
METHOD BLANK

Date Analyzed: 03/03/97
Lab ID: MBS970062
Matrix: Sand
Date Extracted 03/03/97

Parameter	Result	PQL	Units
Diesel Range Organics	ND	5.0	mg/kg

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst WJB

Reviewed [Signature]

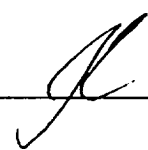
**LAB QA/QC
GASOLINE RANGE ORGANICS - GRO
INSTRUMENT BLANK**

Date Analyzed: 02/28/97
Lab ID: IBS97059A
Matrix: Water

Parameter	Result	PQL	Units
Gasoline Range Organics as Gasoline	ND	0.01	mg/L
Total Purgeable Hydrocarbons	ND	0.01	mg/L
QUALITY CONTROL - Surrogate Recovery	%	QC Limits	
Bromofluorobenzene	100	40 - 163	

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst SD

Reviewed 

LAB QA/QC -
GASOLINE RANGE ORGANICS - GRO
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 02/28/97
Lab ID: 0597H01016
Matrix: Sand
Date Extracted: 02/28/97

Original Sample Parameters

Parameter	Spike Added (mg/kg)	Sample Result (mg/kg)	Spike Result (mg/kg)	MS Recovery %	QC Limits Rec.
Gasoline Range Organics as Gasoline	25	0	14	56	52 - 117

Duplicate Sample Parameters

Parameter	Spike Added (mg/kg)	MSD Result (mg/kg)	MSD Recovery %	RPD %	QC Limits RPD Rec.
Gasoline Range Organics as Gasoline	25	16	64	13	25 52 - 117

Note: Spike Recoveries are calculated using zero for Sample result
if Sample result was less than PQL (Practical Quantitation Level).

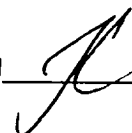
Spike Recovery: 0 out of 2 outside QC limits.

RPD: 0 out of 1 outside QC limits.

Analyst

SP

Reviewed



LAB QA/QC
GASOLINE RANGE ORGANICS - GRO
LAB CONTROL SAMPLE

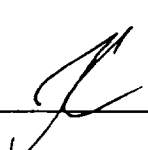
Date Analyzed: 02/28/97
Lab ID: LCS97059
Matrix: Sand
Date Extracted 02/28/97

Parameter	Spike Added (mg/kg)	Sample Result (mg/kg)	LCS Result (mg/kg)	LCS Recovery %	QC Limits Rec.
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Gasoline Range Organics as Gasoline	25	0	20	80	52 -117
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QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	109	40 -163

Spike Recovery: 0 out of 1 outside QC limits.
Surrogates: Surrogate Recoveries within QC Limits.

Analyst SDReviewed 

LAB QA/QC -
DIESEL RANGE ORGANICS - DRO
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: 03/03/97
Lab ID: BSS970062
Matrix: Sand
Date Extracted: 03/03/97

Original Sample Parameters

Parameter	Spike Added (mg/kg)	Sample Result (mg/kg)	Spike Result (mg/kg)	BS Recovery %	QC Limits Rec.
Diesel Range Organics	25.5	0	15.5	61	50 - 150

Duplicate Sample Parameters

Parameter	Spike Added (mg/kg)	BSD Result (mg/kg)	BSD Recovery %	RPD %	QC Limits RPD Rec.
Diesel Range Organics	25.5	15.7	62	1	25 50 - 150

Note: Spike Recoveries are calculated using zero for Sample result
if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 2 outside QC limits.
RPD: 0 out of 1 outside QC limits.

Analyst



Reviewed

