

District I
P.O. Box 1980, 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. **DEPUTY INSPECTOR**

SANTA FE OFFICE
AUG 26 1996
(Revised 3/9/94)

PIT REMEDIATION AND CLOSURE REPORT

Operator: Hallwood Petroleum Company Telephone: (970) 259-1374

Address: 463 Turner Drive, Suite 101 Durango, CO 81301

Facility Or: State #2

Well Name

Location: Unit or Qtr/Qtr Sec NW, NE Sec 2 T 31 N R 7 W County San Juan

Pit Type: Separator X Dehydrator Other

Land Type: BLM , State X, Fee , other

Pit Location: Pit dimensions: length 25', width 20', depth 12'
(Attach diagram)

Reference: wellhead , other

Footage from reference:

Direction from reference: Degrees East North
of
 West South

Depth To Ground Water: Less than 50 feet (20 points)
(Vertical distance from 50 feet to 99 feet (10 points)
contaminants to seasonal Greater than 100 feet (0 points) 0
high water elevation of
ground water)

Wellhead Protection Area:
(Less than 200 feet from a private
domestic water source, or; less than
1000 feet from all other water sources)

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DIST. 3

Yes (20 points)
No (0 points) 0

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, Greater than 1000 feet (0 points) 0
irrigation canals and ditches)

RANKING SCORE (TOTAL POINTS): 0

Date Remediation Started: 10/19/94 Date Completed: 04/25/96

Remediation Method: Excavation X Approx. cubic yards 210
(Check all appropriate sections) Landfarmed X Insitu Bioremediation _____
Other Landfarm on site.

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

General Description Of Remedial Action: Material excavated and landfarmed
on site. Berm placed around landfarm. Initial soil sample pulled at
sandstone interface with soil. Refusal at 12 feet. Landfarming completed
on April 24, 1996. Took 6 pt. composite sample. PIT CLOSED.

Ground Water Encountered: No X Yes _____ Depth _____

Final Pit: Sample location 6 pt. composite

Closure Sampling:

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

Sample depth 2'

Sample date 04/24/96 Sample time _____

Sample Results

Benzene (ppm) 0.0014

Total BTEX (ppm) 0.0143

Field headspace (ppm) N/A

TPH 4176.1 mg/kg

Ground Water Sample: Yes _____ No X (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 05/28/96

SIGNATURE

Kevin E. O'Connell

PRINTED NAME
AND TITLE

KEVIN E. O'CONNELL
DRILLING & PRODUCTION MGR.

ON SITE TECHNOLOGIES, LTD.

TEST HOLE LOG and FIELD TESTING RESULTS

PROJECT: Hollywood Pit Rem JOB # _____ DATE: 10-18-94

SITE LOCATION: State #2 CLIENT: Doug E.

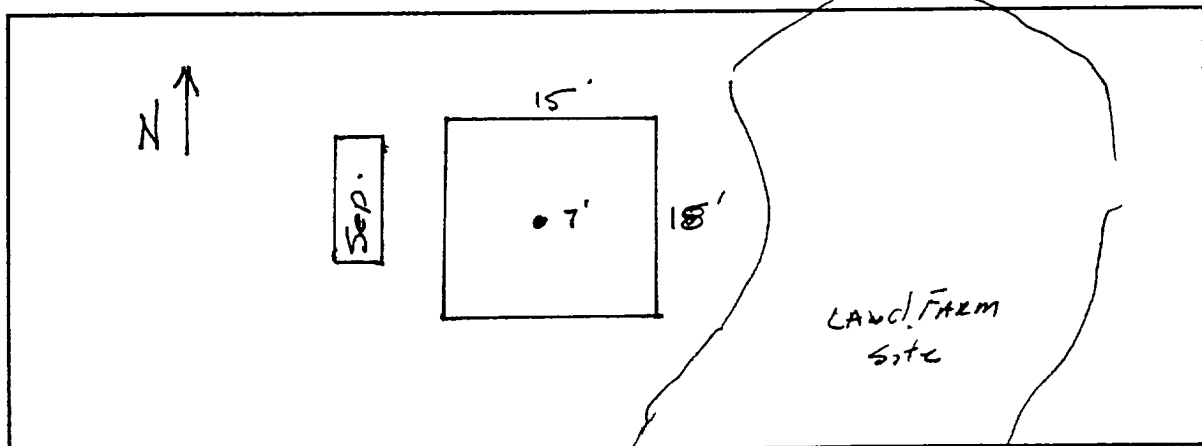
SAMPLER: Jan Little

METHOD: _____

TEST HOLE #: _____ LAB SAMPLE IDs _____

DEPTH	SOIL TYPE	P.I.D. FIELD SCREENING	TPH EPA 418.1	OTHER REMARKS
7'	clay to silty clay	-	-	Land Farms Need to be Bermed

SITE SKETCH WEATHER _____ APPROX. TEMP. _____



(505) 325-8786

FAX (505) 327-1496

3005 NORTHRIDGE DRIVE, SUITE F P.O. BOX 2606 FARMINGTON, NEW MEXICO 87499

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: *10/19/94*
Lab ID: *2223*
Sample ID: *3636*
Job No. *4-1097*

Project Name: *Hallwood Petroleum / Pit Assessments*
Project Location: *State 2 Grab Sample 7' Pit Bottom*
Sampled by: *JL* Date: *10/18/94*
Analyzed by: *DLA* Date: *10/19/94*
Sample Matrix: *Soil*

Time:

Aromatic Volatile Organics

Component	Measured Concentration ug/kg	Detection Limit Concentration ug/kg
<i>Benzene</i>	<i>15,372</i>	<i>0.2</i>
<i>Toluene</i>	<i>105,215</i>	<i>0.2</i>
<i>Ethylbenzene</i>	<i>19,279</i>	<i>0.2</i>
<i>m,p-Xylene</i>	<i>148,408</i>	<i>0.2</i>
<i>o-Xylene</i>	<i>53,410</i>	<i>0.2</i>
	<i>TOTAL 341,684 ug/kg</i>	

ND - Not Detectable

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

Approved by:

Date:

Jon Little
10/19/94

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

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: 10/19/94
Lab ID: 2223
Sample No. 3636
Job No. 4-1097

Project Name: *Hallwood Petroleum / Pit Assessments*
Project Location: *State 2 Grab Sample 7' Pit Bottom*
Sampled by: JL Date: 10/18/94 Time:
Analyzed by: DC Date: 10/18/94
Type of Sample: *Soil*

Laboratory Analysis

Laboratory Identification	Sample Identification	Total Petroleum Hydrocarbons
3636-2223	<i>Hallwood Petroleum / Pit Assessments</i> <i>State 2 Grab Sample 7' Pit Bottom</i>	21,691 mg/kg

Method - EPA Method 418.1 Total Petroleum Hydrocarbons

Approved by:

Date:

Ja G
10/19/94

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— TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT —

ON SITE TECHNOLOGIES, LTD.

TEST HOLE LOG and FIELD TESTING RESULTS

PROJECT: Hallwood Pit Remediation JOB # 4-1137 DATE: 10-24-94

SITE LOCATION: State #2 CLIENT: Doug Edworthy

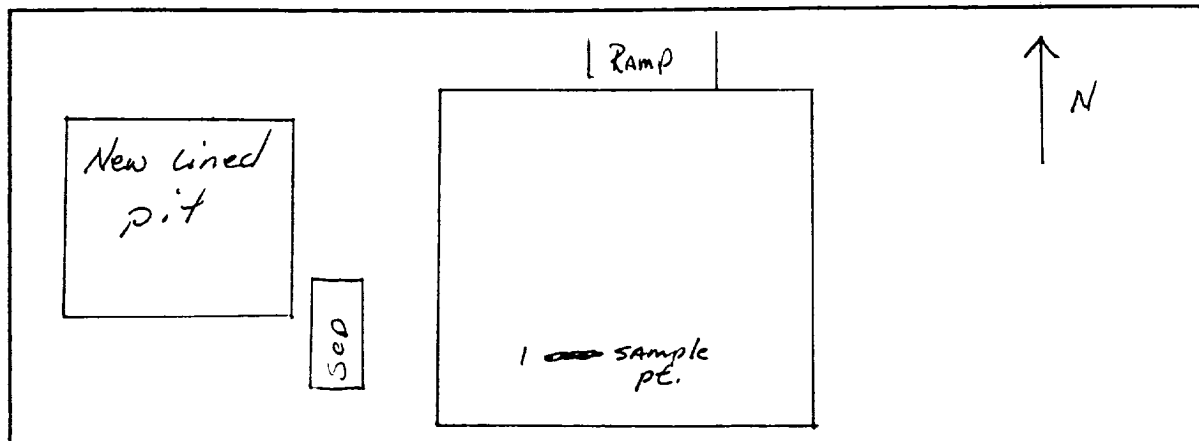
SAMPLER: Jon Little

METHOD: _____

TEST HOLE #: _____ LAB SAMPLE IDs: _____

DEPTH	SOIL TYPE	P.I.D. FIELD SCREENING	TPH EPA 418.1	OTHER REMARKS
<u>2'</u>	<u>Sandstone and clay</u>	<u>> 2500</u>	<u>NA</u>	<u>photos 8, 9, 10</u>

SITE SKETCH _____ WEATHER _____ APPROX. TEMP. _____



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3005 NORTHRIDGE DRIVE, SUITE F P.O. BOX 2606 FARMINGTON, NEW MEXICO 87499

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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: *10/25/94*
Lab ID: *2234*
Sample No. *3718*
Job No. *4-1137*

Project Name: *Hallwood Petroleum / Pit Remediation and Sampling*
Project Location: *State #2 Soil Sample @ 12'*
Sampled by: *JL* Date: *10/24/94* Time: *15:30*
Analyzed by: *DLA* Date: *10/25/94*
Type of Sample: *Soil*

Laboratory Analysis

Laboratory Identification	Sample Identification	Total Petroleum Hydrocarbons
<i>3718-2234</i>	<i>Hallwood Petroleum / Pit Remediation and Sampling</i> <i>State #2 Soil Sample @ 12'</i>	<i>5,175 mg/kg</i>

Method - EPA Method 418.1 Total Petroleum Hydrocarbons

Approved by:

Date:

Jon Little
10/26/94

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

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: *10/25/94*
Lab ID: *2234*
Sample ID: *3718*
Job No. *4-1137*

Project Name: *Hallwood Petroleum / Pit Remediation and Sampling*
Project Location: *State #2 Soil Sample @ 12'*
Sampled by: *JL* Date: *10/24/94* Time: *15:30*
Analyzed by: *DLA* Date: *10/25/94*
Sample Matrix: *Soil*

Aromatic Volatile Organics

Component	Measured Concentration ug/kg	Detection Limit Concentration ug/kg
<i>Benzene</i>	<i>3,132</i>	<i>0.2</i>
<i>Toluene</i>	<i>55,165</i>	<i>0.2</i>
<i>Ethylbenzene</i>	<i>7,690</i>	<i>0.2</i>
<i>m,p-Xylene</i>	<i>73,528</i>	<i>0.2</i>
<i>o-Xylene</i>	<i>21,102</i>	<i>0.2</i>
TOTAL <i>160,617 ug/kg</i>		

ND - Not Detectable

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

Approved by: *DLA*

Date: *10/26/94*

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-8786



LAB: (505) 325-5667

QUALITY ASSURANCE REPORT
for EPA Method 8020

Date Analyzed: 10/25/94

Internal QC No.: 0222-STD

Surrogate QC No.: 0223-STD

Reference Standard QC No.: 0355-STD

Method Blank

Analytes in Blank	Amount
Average Amount of All Analytes In Blank	<0.1 ppb

Calibration Check

Calibration Standards	Units of Measure	*True Value	Analyzed Value	% Diff	Limit
Benzene	ppb	20	19	5	15%
Toluene	ppb	20	18	10	15%
Ethylbenzene	ppb	20	17	13	15%
m,p-Xylene	ppb	40	36	11	15%
o-Xylene	ppb	20	18	12	15%

Spike Results

Analyte	1- Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	105	104	(39-150)	1	20%
Toluene	98	98	(46-148)	0	20%
Ethylbenzene	100	99	(32-160)	1	20%
m,p-Xylene	98	97	(35-145)	1	20%
o-Xylene	96	95	(35-145)	1	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	S3 Percent Recovered
Limits	(70-130)		
3718-2234	96		

S1: Fluorobenzene

CHAIN OF CUSTODY RECORD

2234

Date: 10-24-94

Page 1 of 1

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

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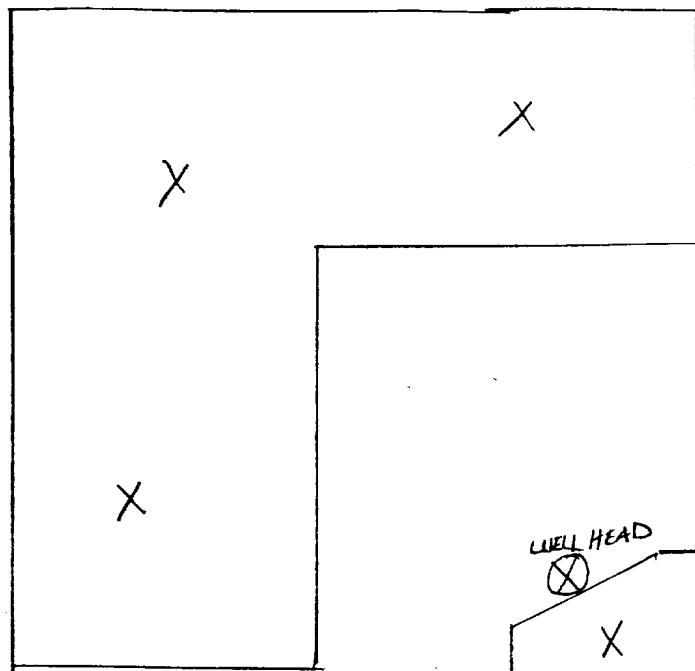
Distribution: White – On Site Yellow – LAB Pink – Sampler Goldenrod – Client

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



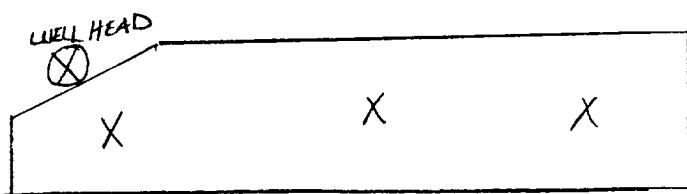
HALLWOOD PETROLEUM
STATE # 3

DATE: 4-24-96

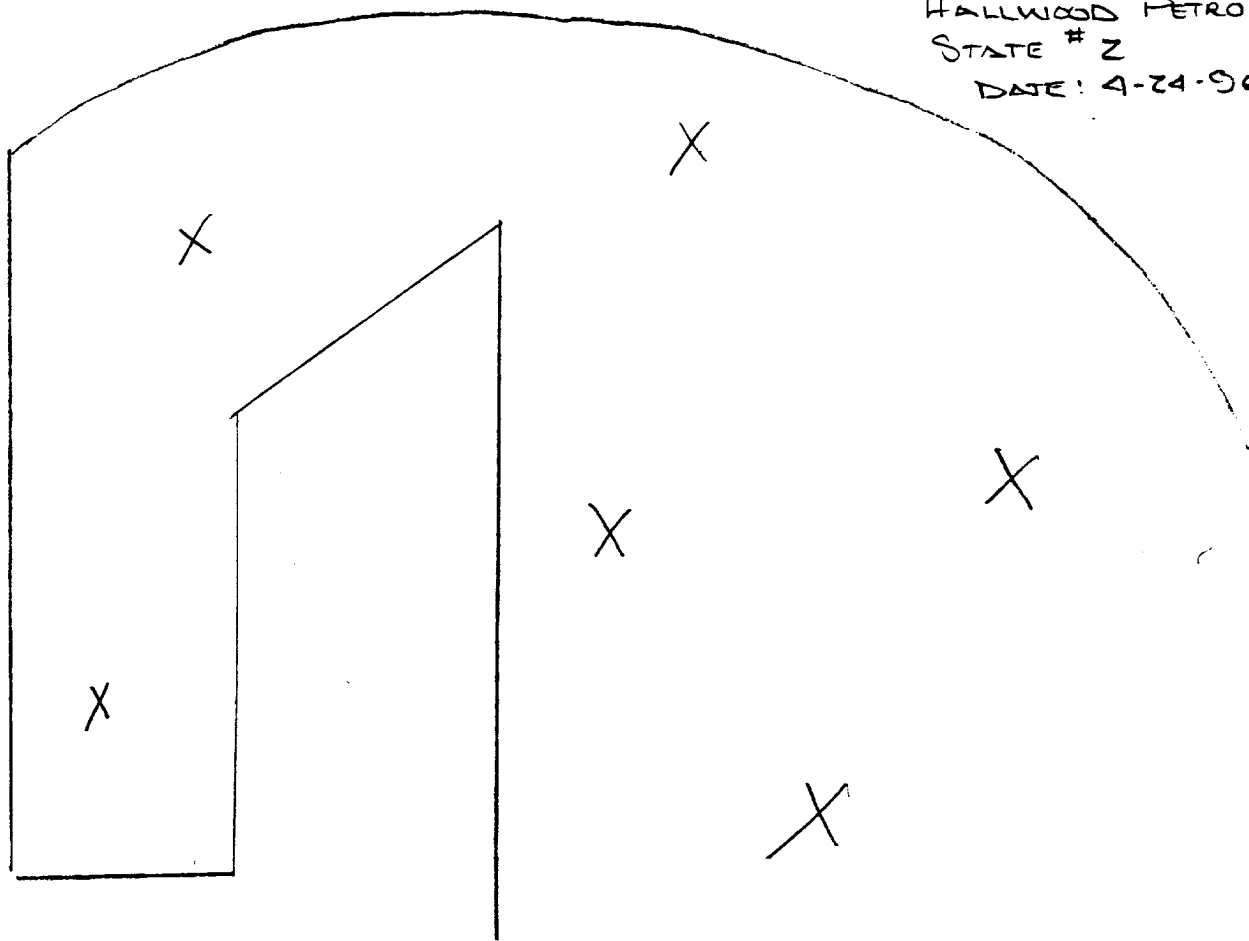


SOIL SAMPLES - X

WELLHEAD - ⊗



6 PT. COMPOSITE
HALLWOOD PETRO
STATE # 2
DATE: 4-24-96



OFF: (505) 325-8786



LAB: (505) 325-5667

TPH - Gasoline / Diesel Range Organics

Attn: **Duane Aspaas**
 Company: **On Site Technologies, Ltd.**
 Address: **612 E. Murray Drive**
 City, State: **Farmington, NM 87401**

Date: **25-Apr-96**
 COC No.: **4056**
 Sample No. **10714**
 Job No. **4-1137**

Project Name: **Hallwood Petroleum - Middle Mesa**
 Project Location: **State #2; 6pt. Composite**
 Sampled by: **DA** Date: **24-Apr-96** Time: **12:12**
 Analyzed by: **DC** Date: **25-Apr-96**
 Sample Matrix: **Soil**

Laboratory Analysis

Analyte	Result	Unit of Measure	Detection Limit	Unit of Measure
Gasoline Range Organics (C5 - C9)	<5.0	mg/kg	5.0	mg/kg
Diesel Range Organics (C10 - C28)	4176.1	mg/kg	5.0	mg/kg
	TOTAL	4176.1		mg/kg

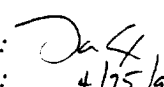
Quality Assurance ReportGRO QC No.: **0447-STD**DRO QC No.: **0446-STD****Calibration Check**

Analyte	Method Blank	Unit of Measure	True Value	Analyzed Value	% Diff	Limit
Gasoline Range (C5 - C9)	<50	ppb	1,350	1,318	2.4	15%
Diesel Range (C10 - C28)	<5.0	ppm	2,000	1,990	0.5	15%

Matrix Spike

Analyte	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Gasoline Range (C5-C9)	102	97	(70-130)	3	20%
Diesel Range (C10-C28)	101	101	(70-130)	0	20%

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

Approved by: 
 Date: **4/25/96**

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- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-8786



LAB: (505) 325-5667

AROMATIC VOLATILE ORGANICS

Attn: *Duane Aspaas*
Company: *On Site Technologies, Ltd.*
Address: *612 E. Murray*
City, State: *Farmington, NM 87401*

Date: 26-Apr-96
COC No.: 4056
Sample No. 10714
Job No. 4-1137

Project Name: *Hallwood Petroleum - Middle Mesa*

Project Location: *State #2; 6pt. Composite*

Sampled by: DA Date: 24-Apr-96 Time: 12:12

Analyzed by: DC Date: 25-Apr-96

Sample Matrix: *Soil*

Aromatic Volatile Organics

Component	Result	Units of Measure	Detection Limit	Units of Measure
<i>Benzene</i>	1.4	ug/kg	0.2	ug/kg
<i>Toluene</i>	4.3	ug/kg	0.2	ug/kg
<i>Ethylbenzene</i>	<0.2	ug/kg	0.2	ug/kg
<i>m,p-Xylene</i>	5.9	ug/kg	0.2	ug/kg
<i>o-Xylene</i>	2.7	ug/kg	0.2	ug/kg
	TOTAL	14.3		ug/kg

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

Approved by: *[Signature]*
Date: 4/26/96

P. O. BOX 2606 • FARMINGTON, NM 87499

- TECHNOLOGY BLENDING INDUSTRY WITH THE ENVIRONMENT -

OFF: (505) 325-8786



LAB: (505) 325-5667

QUALITY ASSURANCE REPORT
for EPA Method 8020

Date Analyzed: 25-Apr-96

Internal QC No.: 0444-STD

Surrogate QC No.: 0445-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	21.3	6	15%
Toluene	ppb	20.0	20.6	3	15%
Ethylbenzene	ppb	20.0	21.5	8	15%
m,p-Xylene	ppb	40.0	42.4	6	15%
o-Xylene	ppb	20.0	22.2	11	15%

Matrix Spike

Analyte	1 - Percent Recovered	2 - Percent Recovered	Limit	%RSD	Limit
Benzene	105	110	(39-150)	3	20%
Toluene	109	110	(46-148)	0	20%
Ethylbenzene	112	113	(32-160)	1	20%
m,p-Xylene	110	112	(35-145)	1	20%
o-Xylene	111	111	(35-145)	0	20%

Surrogate Recoveries

	S1 Percent Recovered	S2 Percent Recovered
Laboratory Identification		
Limit Percent Recovery	(70-130)	
10713-4056	100	
10714-4056	99	

S1: Fluorobenzene

CHAIN OF CUSTODY RECORD



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
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