

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  
1220 St. Francis Drive

Santa Fe, New Mexico 87505

SUBMIT 1 COPY TO  
APPROPRIATE

DISTRICT OFFICE  
AND 1 COPY TO

SANTA FE OFFICE

(Revised 3/9/94)

PIT REMEDIATION AND CLOSURE REPORT

Operator: Hallador Petroleum, LLP

Telephone: 1-800-839-5506

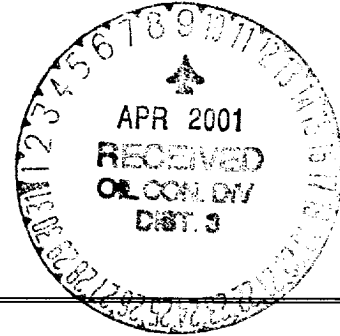
Address: 1660 Lincoln Street, Denver CO. 80264

Well Name: Horton 9

Location: Unit G, Sec22 T32N R11W, County: San Juan, NM

Pit Type: Separator ☒ Dehydrator ☐ Other ☐

Land Type: BLM



Pit Location: Pit dimensions: length 20' width 20' depth 22'  
(Attach diagram)

Reference: wellhead ☒

Footage from reference: 50'

Direction from reference: 12 Degrees West of North

Depth To Ground Water:  
(Vertical distance from  
contaminants to seasonal  
high water elevation of  
ground water)

Less than 50 feet	(20 points)
50 feet to 99 feet	(10 points)
Greater than 100 feet	(0 points)
<u>0</u>	

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

Yes	(20 points)
No	(0 points)
<u>0</u>	

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 1000 feet	(10 points)
Greater than 1000 feet	(0 points)
<u>0</u>	

RANKING SCORE (TOTAL POINTS): 0

Date Remediation Started: 10/1999

Date Completed: 11/9/2000

Remediation Method: Excavation x

Approx. cubic yards 330

(Check all appropriate  
sections)

Landfarmed x

Insitu Bioremediation

Remediation Location: Onsite landfarmed

**General Description Of Remedial Action:** Contaminated soils were excavated from the pit area. Bedrock was exposed at approx. 22 feet. The soils were landfarmed in twelve inch lifts on site. Landfarmed soils were turned ten (10) times over a seven-month period. Following remediation and clearance sampling, the treated soils were backfilled in the original pit area.

Ground Water Encountered: No x Yes      Depth                     

#### Closure Sampling

Sample Horton 9

Sample location Pit excavation bottom 5 point composite

Sample depth Refusal 6 inches below excavated bottom +/- approximately 22' BGS

Lab ID Horton 9 CPC

Sample date 11/09/00 Sample time 4:20 PM

#### Sample Results

Benzene (ppm) NA

Total BTEX (ppm) NA

Field Headspace (ppm) 0.0

TPH 40mg/Kg

Sample location Side wall 4 point composite

Sample Depth 3-4' BGS

Lab ID Horton 9 SWC

Sample Date 11/09/00 Sample Time 4:30 PM

#### Sample Results

Benzene (ppm) NA

Total BTEX (ppm) NA

Field Headspace 0.0

TPH ND

Ground Water Sample: Yes      No X

AS AN AUTHORIZED AGENT FOR HALLADOR PETROLEUM, I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

DATE 4/4/01

SIGNATURE



NAME John Hagstrom

TITLE: Environmental Technician

District I

State of New Mexico

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TO  
APPROPRIATE

District II

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OIL CONSERVATION DIVISION

SANTA FE  
OFFICE

1000 Rio Brazos Rd,  
Aztec, NM 87410

1220 St. Francis Drive  
Santa Fe, New Mexico 87505

**Landfarm Remediation and Closure Report**

Owner/Operator: Hallador Petroleum, LLP

Telephone: 1-800-839-5506

Address: 1660 Lincoln Street Denver, CO 80264

Facility or Well Name: Horton 9

Location: Unit G, Section: 22 T32N R11W

County: San Juan, NM

Land Type BLM X, State     , Fee     , Other                     

Landfarm location Length: 100' Width: 40'

Reference: Wellhead: X Other:                     

Footage from reference: 50'

Direction from reference: 4° West of North

Refer to attached map for land farm location

**GENERAL DISCRIPTION of LANDFARM ACTIVITIES:** Contaminated soils were excavated from the pit area to approximately 22 feet. Bedrock of shale was encountered at this depth. Recovered soil was distributed on location in twelve inch lifts, soils were turned ten times over a seven-month period, and sampled for clearance. Remediated soils were backfilled into the original pit.

**SAMPLING INFORMATION**

Type of sample: Grab:      Composite: 10 points

Sample Depth : 0-12"

Sample Date: 09/11/00 Sample Time: 1635

Laboratory Analysis: BTEX NA (ppm) TPH ND (ppm)

OVM/PID 0.0 units

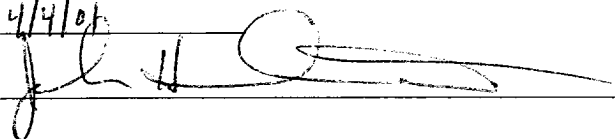
Refer to attached map for sample locations. Laboratory results attached.

AS AN AUTHORIZED AGENT FOR HALLADOR PETROLEUM, I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

Date:

4/4/01

Signature:



Print Name: John Hagstrom

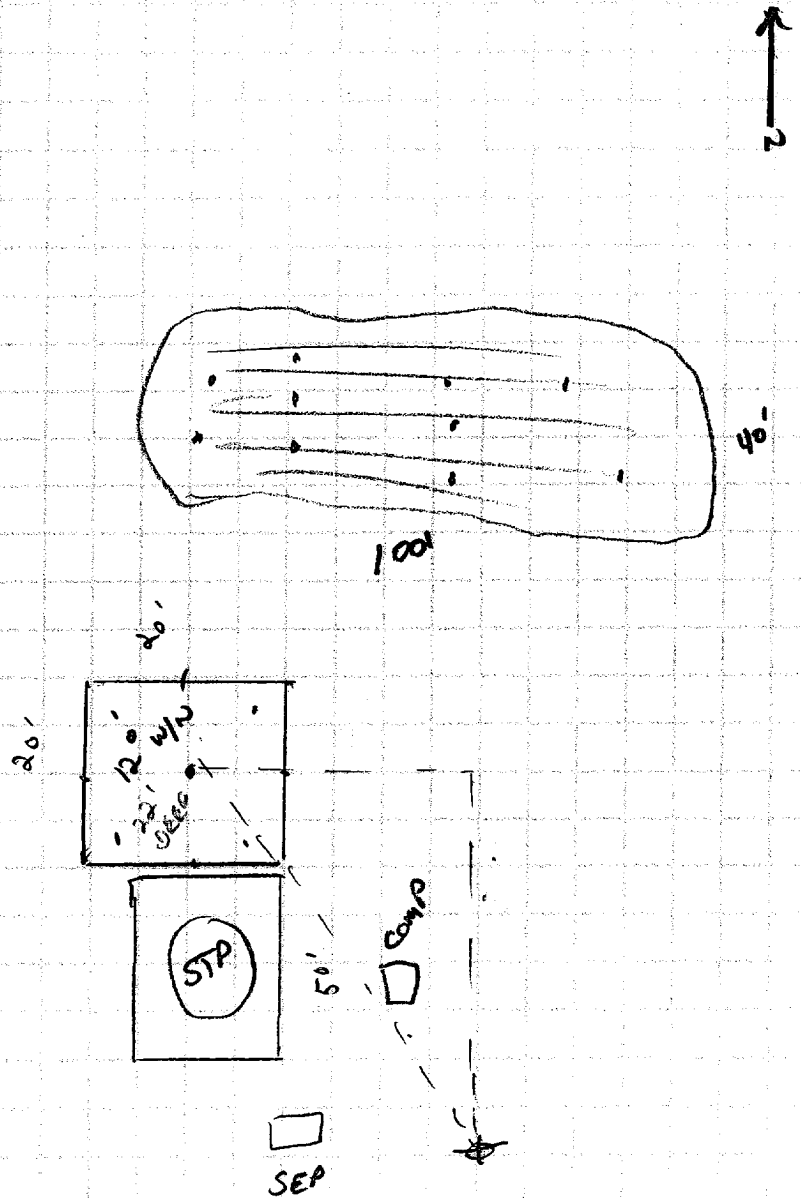
Title:

Environmental Technician



DATE 11/9/00  
BY JPL

SUBJECT Horton 9  
SW/NE SEC 22 T32N R11W SANDHILL COUNTY



OFF: (505) 325-5667  
FAX: (505) 327-1496



LAB: (505) 325-1556  
FAX: (505) 327-1496

November 20, 2000

John Hagstrom  
On Site Technologies Limited  
612 E. Murray Drive  
P.O. Box 2606  
Farmington, NM 87499  
TEL: (505) 325-5667  
FAX (505) 327-1496

RE: 4-1771; Hallador Pits

Order No.: 0011017

Dear John Hagstrom,

On Site Technologies, LTD. received 3 samples on 11/9/2000 for the analyses presented in the following report.

The Samples were analyzed for the following tests:  
SOPREP SONICATION: TPH 418.1 (SW3550A)  
TPH, T/R Soil (E418.1)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Cox', with a stylized flourish at the end.

David Cox

OFF: (505) 325-5667  
FAX: (505) 327-1496



LAB: (505) 325-1556  
FAX: (505) 327-1496

**On Site Technologies, LTD.**

**Date:** 20-Nov-00

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**CLIENT:** On Site Technologies Limited  
**Project:** 4-1771; Hallador Pits  
**Lab Order:** 0011017

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**CASE NARRATIVE**

Samples were analyzed using the methods outlined in the following references:

Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983.

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives.

Any quality control and/or data qualifiers associated with this laboratory order will be flagged in the analytical result page(s) or the quality control summary report(s).

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FAX: (505) 327-1496

## ANALYTICAL REPORT

Date: 20-Nov-00

<b>Client:</b>	On Site Technologies Limited	<b>Client Sample Info:</b>	Hallador Pits
<b>Work Order:</b>	0011017	<b>Client Sample ID:</b>	Horton 9 CPC
<b>Lab ID:</b>	0011017-01A	<b>Matrix:</b>	SOIL
<b>Project:</b>	4-1771; Hallador Pits	<b>Collection Date:</b>	11/9/2000 4:20:00 PM
		<b>COC Record:</b>	11015

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>TPH, T/R SOIL</b>		<b>E418.1</b>				
Petroleum Hydrocarbons, T/R	40	25		mg/Kg	1	Analyst: DM 11/16/2000

<b>Qualifiers:</b>	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

1 of 3

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EMAIL: ONSITE@ONSITELTD.COM

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OFF: (505) 325-5667  
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LAB: (505) 325-1556  
FAX: (505) 327-1496

## ANALYTICAL REPORT

Date: 20-Nov-00

<b>Client:</b>	On Site Technologies Limited	<b>Client Sample Info:</b>	Hallador Pits
<b>Work Order:</b>	0011017	<b>Client Sample ID:</b>	Horton 9 SWC
<b>Lab ID:</b>	0011017-02A	<b>Matrix:</b>	SOIL
<b>Project:</b>	4-1771; Hallador Pits	<b>Collection Date:</b>	11/9/2000 4:30:00 PM
		<b>COC Record:</b>	11015

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>TPH, T/R SOIL</b>		<b>E418.1</b>				
Petroleum Hydrocarbons, T/R	ND	25		mg/Kg	1	Analyst: DM 11/16/2000

<b>Qualifiers:</b>	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

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LAB: (505) 325-1556  
FAX: (505) 327-1496

## ANALYTICAL REPORT

Date: 20-Nov-00

**Client:** On Site Technologies Limited  
**Work Order:** 0011017  
**Lab ID:** 0011017-03A     **Matrix:** SOIL  
**Project:** 4-1771; Hallador Pits

**Client Sample Info:** Hallador Pits  
**Client Sample ID:** Horton 9 LFC  
**Collection Date:** 11/9/2000 4:35:00 PM  
**COC Record:** 11015

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
<b>TPH, T/R SOIL</b>		<b>E418.1</b>				<b>Analyst: DM</b>
Petroleum Hydrocarbons, T/R	ND	25		mg/Kg	1	11/16/2000

**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

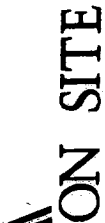
S - Spike Recovery outside accepted recovery limits  
R - RPD outside accepted recovery limits  
E - Value above quantitation range  
Surr: - Surrogate

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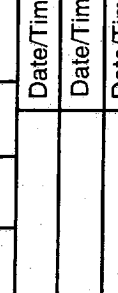
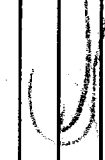

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**TECHNOLOGIES, LTD.**

Purchase Order No.:		Project No. 41771		Name: J. H. Hestrom		Title:	
Name: J. H. Hestrom		Company:		Mailing Address:		City, State, Zip:	
Address:		Dept.:		Telephone No.:		Telefax No.:	
City, State, Zip:							

PROJECT LOCATION:				ANALYSIS REQUESTED											
SAMPLER'S SIGNATURE: 															
SAMPLE IDENTIFICATION				SAMPLE				LAB ID							
DATE		TIME		MATRIX		PRES.									
11/14/00		1200		SOIL		COLD		1 4/18							
11/14/00		1630		b		b									
11/14/00		1635		b		b									
Relinquished by: 				Date/Time: 11/14/00				Received by: J. H. Hestrom				Date/Time: 11/14/00			
Relinquished by: 				Date/Time:				Received by:				Date/Time:			
Relinquished by:				Date/Time:				Received by:				Date/Time:			
Method of Shipment:								Rush		24-48 Hours		10 Working Days		By Date	
Special Instructions / Remarks:															

Authorized by: _____		Date: _____	
(Client Signature <u>Must</u> Accompany Request)			