

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Risk
Bellock
Submit 1 copy to
appropriate
District Office
and 1 copy to
the Santa Fe Office
(Revised 3/9/94)

PIT REMEDIATION AND CLOSURE REPORT

30-045-2198

Operator: Hallador Petroleum, LLP Telephone: 1-800-839-5506

Address: 1660 Lincoln Street, Denver, CO 80264

Facility Or: Horton 1A

Well Name

Location: Unit G Sec 7, T 31N, R 11W, County San Juan, NM

Pit Type: Separator X Dehydrator _____ Other _____

Land Type: BLM X, State _____, Fee _____ Other _____



Pit Location: Pit dimensions: length 40', width 35', depth 25'

(Attach diagram)

Reference: wellhead X, other _____

Footage from reference: 50'

Direction from reference: 10 Degrees South of East

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

Wellhead Protection Area:		(20 points)
(Less than 200 feet from a private	No	(0 points)
domestic water source, or; less than		<u>0</u>
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,	Greater than 1000 feet Yes	(0 points)
irrigation canals and ditches.)		<u>0</u>

RANKING SCORE (TOTAL POINTS): 20

Date Remediation Started: 10/1999 Date completed: 6/2003

Remediation Method: Excavation X Approx. cubic yards 1296

(Check all appropriate sections.)

Landfarmed X

Insitu Bioremediation

Other _____

Remediation Location: Onsite Landfarmed Offsite

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

General Description of Remedial Action: Contaminated soils were excavated from pit area to a bedrock (shale) at approx. 25 feet. Recovered soil was distributed on the location and plowed and tilled periodically over a two year period.

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 Horton 1A, pit excavation bottom
Sample depth 1' below excavated bottom approx. 23' BGS
Sample Date 11/09/00 Sample time 0915
Sample Results
Benzene(ppm) NA
Total BTEX(ppm) NA
Field headspace(ppm) 0.0
TPH 110 mg/Kg

Sample location Horton 1A, side wall
Sample depth 3-4' BGS
Sample Date 11/09/00 Sample time 0925
Sample Results
Benzene(ppm) NA
Total BTEX(ppm) NA
Field headspace(ppm) 0.0
TPH ND mg/Kg

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

As an Agent for Hallador, LLP, I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Date 7/1/03

Signature



Printed Name: John Hagstrom
and Title: Environ. Technician

Operator: Hallador Petroleum Inc.
Location Name: Horton 1A
Location: Unit G Sec. 7, T31N, R11W, San Juan County, NM
Risk Ranking: 20

**RATIONAL FOR RISK-BASED CLOSURE OF PRODUCTION PITS LOCATED INSIDE OF THE
VULNERABLE ZONE IN SAN JUAN BASIN**

This production pit location was ranked according to the criteria in the New Mexico Oil Conservation Division's Unlined Surface Impoundment Closure Guidelines and received a ranking score of ten. The estimated depth to groundwater is less than 50-feet beneath ground surface (BGS); the pit is not in a well head protection area. There are no surface water bodies within 1,000 horizontal feet of the pit location (ephemeral washes).

The primary source of contamination, discharge to the pit has been removed. There has been no discharge to the pit for at least two (2) years. The pit has been closed for at least two years. Bedrock was encountered at approximately 25 feet with no ground water encountered.

The pit has not been back filled with clean soil yet. When back filling is accomplished it will be graded in a manner to divert precipitation away from excavated area. Minimal infiltration of rainfall is expected. Any rainfall that does infiltrate the ground surface must migrate through clean backfill before reaching the residual hydrocarbons.

There is no source material at the ground surface, so direct contact with livestock and populous is not likely.

In general, outside of the vulnerable area and alluvial valleys, bedrock material is generally encountered within twenty (20) feet of the ground surface. Bedrock material in the San Juan Basin consists of interbedded sandstones, shales and clays. According to Freeze and Cherry, 1979, the hydraulic conductivity of the bedrock material are as follows:

Sandstone	10^{-9} to 10^{-13} cm/sec
Shale	10^{-12} to 10^{-16} cm/sec
Clay	10^{-12} to 10^{-15} cm/sec

Based on this information, the residual hydrocarbons should not migrate to groundwater.

Natural process' (bioremediation) are degrading the residual hydrocarbon to carbon dioxide and water and will continue until source is gone, therefore minimizing any impact to the environment.

Based on the above information, it is highly unlikely that any source material will impact groundwater or ever find an exposure pathway to effect human health, therefore

Hallador Petroleum Inc. requests closure of this pit location.

District I

State of New Mexico

SUBMIT 1 COPY
TO

P.O. Box 1980,
Hobbs, NM

Energy, Minerals and Natural Resources
Department

APPROPRIATE

District II

DISTRICT
OFFICE

P.O. Drawer DD,
Artesia, NM 88211

AND 1 COPY TO

District III

OIL CONSERVATION DIVISION

SANTA FE
OFFICE

1000 Rio Brazos
Rd, Aztec, NM
87410

P.O. Box 2088

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 1A

Location: Unit G, Section: 7 T31N R11W

County: San Juan

Land Type BLM ☒ State ☐ Fee ☐ Other ☐

Landfarm location Length: 175' Width: 65'

Reference: Wellhead: ☒ Other: ☐

Footage from reference: 54'

Direction from reference: 45° East of North

Refer to attached map for land farm location

GENERAL DISCRIPTION of LANDFARM ACTIVITIES: Contaminated soils were excavated from the pit area to bedrock (shale) at approx. 25'. Recovered soil was distributed on location and plowed/tilled, numerous times over a twenty four month period. Following clearance sampling and land farm remediation, treated soils will be backfilled in original pit area.

SAMPLING INFORMATION

Type of sample: Grab: ☐ Composite: 10 points

Sample Depth : 0-12"

Sample Date: 6/9/03 Sample Time: 1110

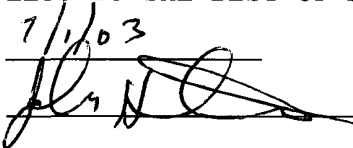
Laboratory Analysis: BTEX NA (ppm) TPH ND mg/Kg (ppm)

OVM/PID 0.0 units

Refer to attached map for sample location. Laboratory results attached

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

Date: 7/1/03

Signature: 

Print Name: John Hagstrom

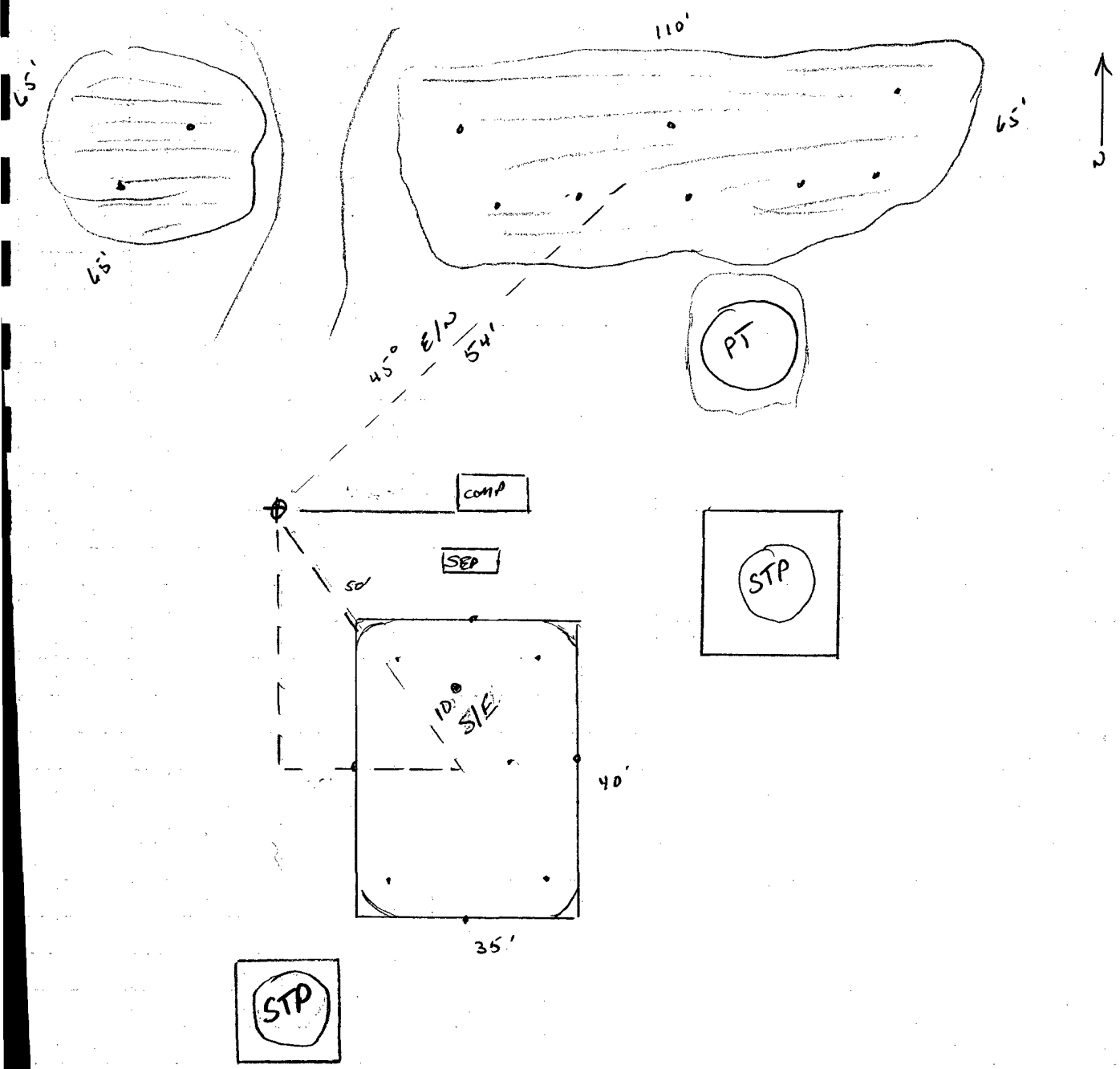
Title: Environmental Technician

ON SITE

TECHNOLOGIES, LTD.

DATE 11/9/00
BY JPH

SUBJECT HOLTON 1A
SW/NE SEC 7 T31N R11W SJC SF 078095A



612 E. Murray Drive
Farmington, NM 87499

Off: (505) 327-1072
FAX: (505) 327-1496

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P.O. Box 3788
Shiprock, NM 87420

Off: (505) 368-4065

ANALYTICAL REPORT

Date: 17-Jun-03

CLIENT:	Souder, Miller & Associates	Client Sample Info:	Horton 1A
Work Order:	0306016	Client Sample ID:	Landfarm Sample
Project:	1114128; Horton 1A Landfarm	Collection Date:	6/9/2003 11:10:00 AM
Lab ID:	0306016-001A	Matrix:	SOIL

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
DIESEL RANGE ORGANICS		SW8015B				Analyst: JEM
T/R Hydrocarbons: C10-C28	ND	25.0		mg/Kg	1	6/16/2003
GASOLINE RANGE ORGANICS		SW8015B				Analyst: JEM
T/R Hydrocarbons: C6-C10	ND	4.50		mg/Kg	25	6/16/2003

Qualifiers:	ND - Not Detected at the Practical Quantitation Limit	S - Spike Recovery outside accepted recovery limits
	J - Analyte detected below Practical Quantitation Limit	R - RPD outside accepted precision limits
	B - Analyte detected in the associated Method Blank	E - Value above Upper Quantitation Limit - UQL
	* - Value exceeds Maximum Contaminant Level	

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MAINTAINING HARMONY BETWEEN MAN AND HIS ENVIRONMENT