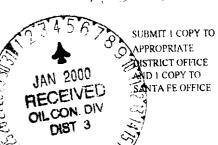
Kish / / K

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



## PIT REMEDIATION AND CLOSURE REPORT

Operator: Ene	rgen Resources (Tauru	s Exploration)	Telephone:	(505) 326-6131	-
Address: 219	8 Bloomfield Highway	Farmington, NM	87401		_
Facility Or: W	O. Hughes # 6				
Location: Unit or Qtr/Q	our Sec Sec8	T 24N	R 3W County Rio A	Arriba	÷
Pit Type: Separator	<b>7.</b> 1. 1.	orOther_Se	parator/Production Tan	<u>k</u>	
Land Type: BLM	State	, Fee <u>X</u>	, Other		_
Pit Location: (Attach diagram)	Pit dimensions: Length		20 ft, depth13		
	Reference: wellhead  Footage from reference:	105 ft			
	Direction from reference:	80 Degrees	of	X	
Depth to Ground Wat (vertical distance from contaminants to seaso highwater elevation of ground water)	n mal	X	Less than 50 feet 50 ft to 99 feet Greater than 100 feet	(20 points) (10 points) ( 0 points)	0
Wellhead Protection (less than 200 feet frodomestic water sourc 1000 feet from all others)	om a private e, or: less than		Yes X No	(20 points) ( 0 points)	0
Distance to Surface V (Horizontal distance lakes, ponds, rivers, s irrigation canals and	to perennial streams, creeks,	X	Less than 200 feet 200 feet to 1000 feet Greater than 1000 feet	(20 points) (10 points) ( 0 points)	0
P:\pits\PrrC@.WK3			RANKING SCORE (TOTA	L POINTS):	0

Date Remediation Started	i: <u>3/1/99</u>	_ Date Completed:	10/22/99
	Excavation X	Approx.	cubic yards168
	Landfarmed X	Insitu B	oremediation
	Other		
Remediation Method:	Onsite X	Offsite	
(Check all appropriate			
sections)			
A soil sample was U.S.E.P.A. protoc were andfarmed	ol and sent to IML for GF on site. The landfarm wa	bottom of the pit at RO/DRO and BTEX s tested and provided	a depth of 13 feet utilizing analysis. Excavate soils
Ground Water Encounte	ered: No X	Yes	
Final Pit: Closure Sampling: (if multiple samples,	Sample location <u>Center be</u>	ottom	
attach sample results and diagram of sample	Sample depth 13 feet (Be	edrock)	
locations and depths)	Sample date <u>3/1/99</u>		Sample time13:05
	Sample Results		
	Benzene(ppm)	<10	
	Total BTEX (PPM)	<992	
	Field Headspace (ppm)	145	
	трн <3263		
Ground Water Sample:	Yes No	(if yes, attach sa	mple results)
OF MY KNOWLEDGE A	•	IS TRUE AND COMPLETE	D TO THE BEST
DATE $\frac{12}{22}$ SIGNATURE $\frac{1}{2}$	/ 98 PR	INTED NAME Virgil C	havez
SIGNATURE	ig / Co and	TITLE Environ	mental Specialist

## Risk Assessment W.O. Hughes # 6

Depth to Groundwater >100'
Distance to Water Source >1000'
Distance to Surface Water >1000'
TPH Limit (ppm) 5000

The subject pit was located in hard, well cemented sandstone at a depth of 13 feet. The initial size of the pit was 15' X 15' X 3' deep. The stained soil was excavated to a final pit size of 20' X 20' X 13' deep. Excavated soil amounted to approximately 168 total cubic yards, and was landfarmed on location.

Pit excavation and closure verification was performed on March 1, 1999 by Cimarron Environmental Services. Total depth of the pit was established at 13 feet (average) due to encountering bedrock along the walls and bottom. A sample from the center bottom at a depth of 13 feet provided a TPH concentration of <3263 ppm and a Headspace concentration of 145 ppm. Total BTEX concentration was measured at <992 ppm. No groundwater was encountered.

The landfarm was sampled by Cimarron Environmental Services on October 22, 1999. A 5-point sample was extracted from the 160 cubic yard landfarm and analyzed. TPH concentration of the sample was <535 ppm with a Headspace concentration of 0.2.

With the associated pit encased in bedrock, lateral and vertical extent determined, and excavated soils within NMOCD and BLM requirements, this pit should be considered to have reached "final closure". Energen Resources 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.

ининининининини	///////////////////////Bedrock////////////////////////////////////		//////////////////////////////////////
4	ω T	N	
West	East	South	North
	Pit Profile : East to West :		Pit Profile : North to South :
Vellhead		A sample from the center bottom at 13 was sent to IML for GRO/DRO and BTEX analysis.	A sample from the center bottom a for GRO/DRO and BTEX analysis
		one	13' Bedrock - solid sandstone
Punn ack		10 - 13: Soil is moist, light brown, sand, with some black staining and a strong hydrocarbon odor.	10' - 13' Soil is moist, light brown, sand, strong hydrocarbon odor.
The second of th	Fiberglass At Tank	trong hydrocarbon odor.	with black staining and a strong hydrocarbon odor.
Entrance		Top soil - 10' Soil is moist, medium brown, sandy/loam	Comments: Top soil - 10' Soil is moist,
		12	
		11	TPH Closure Standard: 5000
		10	ነ <u>።</u> 
		9	·· 
Fiberglass Fit Tank	Control	8	Nearest Water Source: >1000'
		7	Depth to Groundwater: >100'
	Separator/Production Tank Pit		
: : : : : : : : : : : : : : : : : : : :		5 C.Bottom@13' 145	Yds Excavated: 168 cv
Production Tanks		W Wall @10'	
	_		Initial Size: 15'x 15'x 3' deep
		2 S.Wall@10' N.D.	from wellhead
Morth		Sample # Location OVM	Pit: Separator/Production Tank S
``	Off I down on a	24 N	Range: 3W Township:
	Garfana (tadiant	8	Quad: J Section:
			Eucanon vy.O. magnes a o
	Overview of Location and Sampling:	-	



Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Client:

**Energen Resources** 

Project:

WO Hughes #6

Sample ID:

WO Hughes #6 C. Btm @ 13'

Lab ID:

0399W01190

Matrix:

Soil

Condition:

Cool/Intact

Date Reported: 03/19/99

Date Sampled: 03/02/99 Date Received: 03/03/99

Date Analyzed: 03/03/99

	Analytical		
Parameter	Result	PQL	Units
Benzene	<10	10	mg/Kg
Ethylbenzene	471	50	mg/Kg
Toluene	<50	50	mg/Kg
Xylenes (total)	461	50	mg/Kg
Quality Control - Surrogate Recovery	%	QC Li	mits
a,a,a-Trifluorotoluene(SUR-602)	92	70 -	130
Diesel Range Organics	3,258	5	mg/Kg
Diesel Range Organics as Diesel	3,258	5	mg/Kg
Quality Control - Surrogate Recovery	%	QC Li	mits
o-Terphenyl(SUR-8015)	0 **	70 -	130
Gasoline Range Organics	477	5	mg/Kg
Gasoline Range Organics as Gasoline	<5	5	mg/Kg
Quality Control - Surrogate Recovery	%	QC L	imits
a,a,a-Trifluorotoluene(SUR-8015)	92	70 -	130

Reference: Method 8021, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental

Proteetion Agency, SW-846, Volume IB, December 1987.

Reviewed By:

Sharon Willams, Organic Lab Supervisor

<sup>\*\* -</sup> Surrogate Recovery failed QC Limits due to matrix interference.



# CHAIN OF CUSTODY RECORD

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S, IMC.  1160 Research Drive Bozeman, Montana 59718 Telephone (406) 586-8450	Truisti That	Received by: (Signature	Received by: (Signature)												-	No. of Contain	ers	_	_	al hay	
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Date Started March 1, 1999 Date Completed: October 22, 1999

		Overview of Landfarm and Sampling:
Location: W.O. Hughes#6		
Quad : J Section :	8	
Township: 24 N Range:	3 W	Surface Gradient
Pit : Separator/Production Tank	Sample # Location OVM	Zeth.
Reference 175' N 80 W from		
wellhead.	£ 4	Hochical on lanks
Size: 90' x 60' x .75'	5	Separator/H-oduction lank Hit
	9	
748: 160	8	Separator Fi Derga assisticities and Fi Derga assistication and Fi Derga as
	6	
1 5 - Point Composites	10	
	11	Entrance Entrance
	12	Fi bergiass Hit Tank
		1 Pumpiack
		1 vel head
		Landfarm
Comments Soil is moist, pale brown, sandy/loam, v A sample from composite # 1 was sent	wn, sandy/loam, with no staini osite # 1 was sent to IML for G	Soil is moist, pale brown, sandy/loam, with no staining or detectable hydrocarbon odor. A sample from composite # 1 was sent to IML for GRO/DRO analysis.
Ca. inspection Consider VEC		
Environmental opecialist . VLV		



### Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Client: Energen Resources

 Project:
 WO Hughes #6
 Date Reported:
 11/04/99

 Sample ID:
 Landfarm Comp #1
 Date Sampled:
 10/22/99

 Lab ID:
 0399W05387
 Date Received:
 10/25/99

Matrix: Soil

Condition: Cool/Intact Date Analyzed: 10/27/99

Parameter	Analytical Result	PQL	Units
GRO - Method 8015M			
Gasoline Range Organics	<5	5	mg/Kg
Gasoline Range Organics as Gasoline	<5	5	mg/Kg
Quality Control - Surrogate Recovery	%	QC Li	mits
4-Bromofluorobenzene(SUR-8015)	98	70 -	130
a,a,a-Trifluorotoluene(SUR-8015)	120	70 -	130

Reference: Method 8015AZ, C10 - C32 Hydrocarbons in Soil, Arizona Department of Health Services, Revision - 1.0, 09/25/98.

Reviewed By:

William Lipps



## Inter-Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Client:

**Energen Resources** 

Project:

WO Hughes #6

Sample ID:

Landfarm Comp #1

Lab ID:

0399W05387

Matrix:

Soil

Condition:

Cool/Intact

Date Reported: 11/19/99

Date Sampled: 10/22/99

Date Received: 10/25/99

Date Analyzed: 11/03/99

Parameter	Analytical Result	PQL	Units
DRO - Method 8015M			
Diesel Range Organics (C10 - C22)	530	5	mg/Kg
Quality Control - Surrogate Recovery	%	QC Li	mits
o-Terphenyl(SUR-8015)	102	70 -	130

Reference: Method 8015AZ, C10 - C32 Hydrocarbons in Soil, Arizona Department of Health Services, Revision - 1.0, 09/25/98.

Reviewed By:

William Lipps



# CHAIN OF CUSTODY RECORD

Client/Project Name	\ \rightarrow \( \frac{1}{3} \)	20		Project Location	lion Hughes # 6	2,	<b>A</b>	ANALYSES / PARAMETERS	rers	
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Sample No./ Identification	Date	Time	Lab Number	J.	Matrix	No. of Contain	10/8			
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Relinquished by: (Signature)				Date	Time	Received by laboratory: (Signature)	ratory: (Sign	ature)	Date	Time
		_	Inter-Mountain		Laboratofies,	s, Inc.	•			
555 Absaraka Sheridan, Wyoming 82801 Telephone (307) 674-7506		1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945		T1701 Phillips Circle Gillette, Wyoming 82718 Telephone (307) 682-8945	ircle ng 82718 ') 682-8945	2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737	street 17401 326-4737	11183 State Hwy. 30 College Station, TX 77845 Telephone (409) 776-8945		636