

# SITE INFORMATION

## Report Type: Work Plan

### General Site Information:

<b>Site:</b>	Harrier Federal Com 1				
<b>Company:</b>	VPR Operating LLC.				
<b>Section, Township and Range</b>	Unit G	Sec 35	T25S	R32E	
<b>Lease Number:</b>	API No. 39214				
<b>County:</b>	Lea County				
<b>GPS:</b>	32.08846° N			103.64201° W	
<b>Surface Owner:</b>	Federal				
<b>Mineral Owner:</b>					
<b>Directions:</b>	In Jal, from the intersection of Hwy 18 and Hwy 128, travel west on Hwy 128 for 30.0 miles. Turn left (south) on CR 1 and travel 8.4 miles, turn left (east) and travel 2.0 miles, turn right (south) and travel 0.3 miles, turn right (west) and travel 0.3 miles to the site.				

### Release Data:

<b>Date Discovered:</b>	2/11/2013
<b>Type Release:</b>	Produced Fluid
<b>Source of Contamination:</b>	Flow Back Operations
<b>Fluid Released:</b>	25 bbls
<b>Fluids Recovered:</b>	0 bbls

### Official Communication:

<b>Name:</b>	Robert Pullen	9/25/13 THESE SHOULD BE A HAND COPY SENT BACK IN 7/13. WORK AROUND, APPROVED W/ TODAY COND	
<b>Company:</b>	VPR Operating, LLC		Ike Tavaréz
<b>Address:</b>	1406 Campcroft Rd. Suite 106		Tetra Tech
<b>City:</b>	Austin Texas 78746		1910 N. Big Spring
<b>Phone number:</b>	(512) 327-8776		Midland, Texas
<b>Fax:</b>			(432) 682-4559
<b>Email:</b>	bob@vproperating.com		ike.tavarez@tetrattech.com

### Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	0
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
<b>Total Ranking Score:</b>	<b>0</b>	

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000

HOBBS OCD  
 SEP 25 2013  
 RECEIVED



**TETRA TECH**

June 21, 2013

Mr. Geoffrey Leking  
Environmental Engineer Specialist  
Oil Conservation Division, District 1  
1625 North French Drive  
Hobbs, New Mexico 88240

**Re: Work Plan for the VPR Operating LLC., Harrier Federal Com 1, Unit G,  
Section 35, Township 25 South, Range 32 East, Lea County, New  
Mexico.**

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by VPR Operating LLC. (VPR) to assess a spill from the Harrier Federal Com 1, Unit G, Section 35, Township 25 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.08846°, W 103.64201°. The site location is shown on Figures 1 and 2.

### **Background**

According to the State of New Mexico C-141 Initial Report, the leak was discovered on February 11, 2013, and released approximately twenty five (25) barrels of produced fluid from a flow back operations, with zero (0) barrels of standing fluids recovered. The spill initiated on the facility pad measuring approximately 40' x 150', then migrated southwest into the pasture measuring approximately 2' x 200'. In addition, the spill migrated west into the pasture measuring approximately 3' x 840', then south measuring approximately 845', with a width of 3.0' to 10.0'. The initial C-141 form is enclosed in Appendix A.

### **Groundwater**

No water wells were listed within Section 35. According to the NMOCD groundwater map, the average depth to groundwater in this area is approximately 200' below surface. The average depth to groundwater map is shown in Appendix B.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com

DTW<sub>2</sub> 250'



### **Regulatory**

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

### **Soil Assessment and Analytical Results**

On February 28, 2013, Tetra Tech personnel inspected and sampled the spill area. Twenty-five (25) auger holes (AH-1 through AH-25) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, all of the auger holes exceeded the RRAL for TPH, with the exception of AH-7 and AH-24. The selected samples for BTEX did not exceed either the benzene or total BTEX on majority of the samples. The impact soils were vertically defined in the areas AH-2, AH-17, AH-20, AH-22, AH-23 and AH-25 at depths of 1.5', 2.5', 1.5', 4.5', 3.5' and 3.5', respectively. The remaining areas were not vertically defined for either TPH or BTEX.

In addition, the chloride concentrations did not show a significant impact to the soils. The areas of AH-1 showed a chloride of 2,010 mg/kg at 0-1' and 909 mg/kg at 1-1.5' in the area of AH-12. These areas were not vertically defined.

### **Work Plan**

VPR Operating proposes to excavate the impacted soil as shown in Table 1. The impacted areas will be excavated to a depth of approximately 1.5' to 3.5' below surface to remove the soil above the RRAL. Once excavated, Tetra Tech will collect confirmation samples from the excavation bottoms for TPH and BTEX. In the areas of AH-1 and AH-12, additional samples will be collected to define the chloride extents. Based on the field results, these areas will be excavated to the appropriate depths.

All of the excavated material will be transported offsite for proper disposal. Once final excavation depths are achieved, only the excavated areas around the well pad will be backfilled with clean material and brought to grade. As approved by the BLM, the excavated areas off the pad area will not be backfilled.



**TETRA TECH**

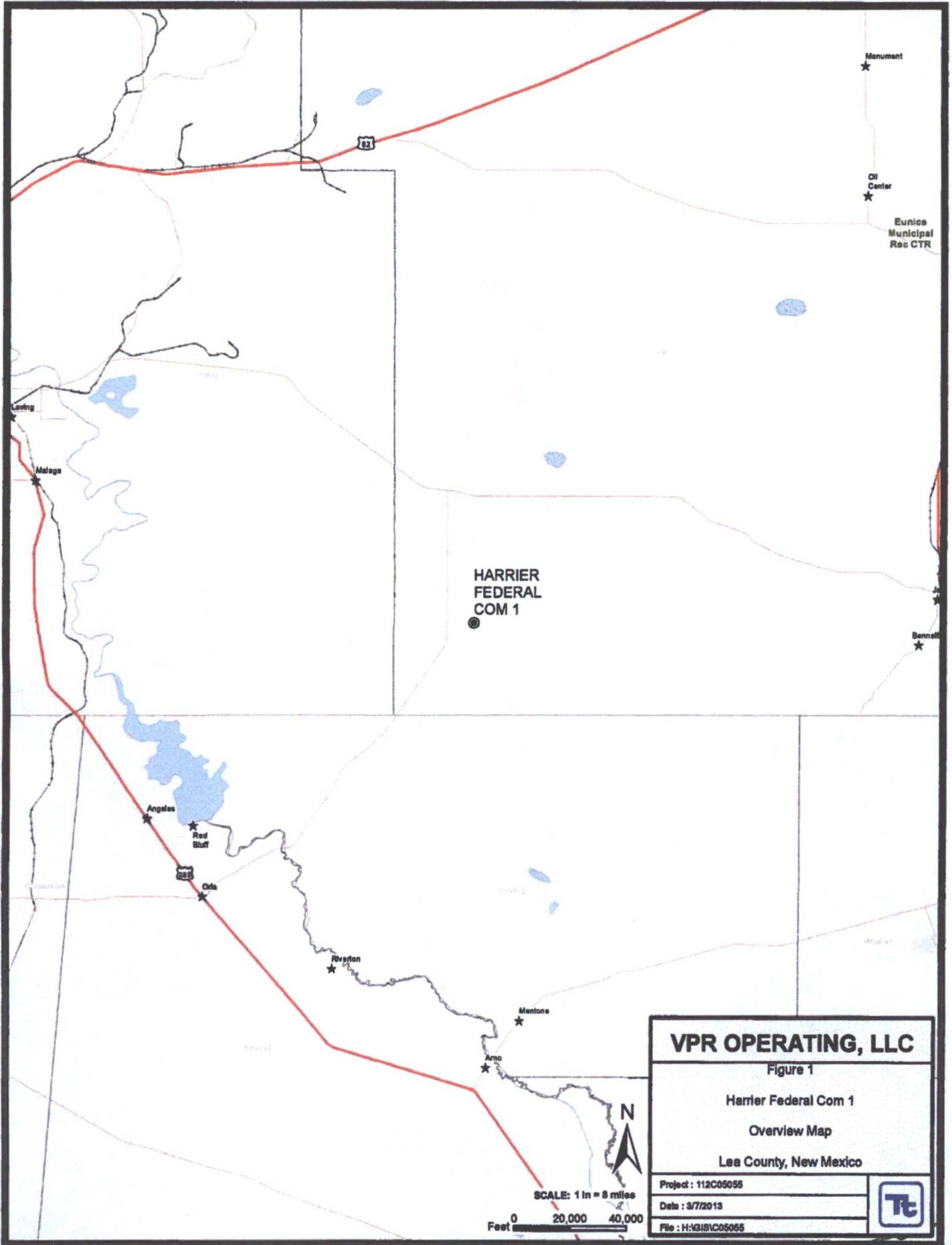
Due to the location of the spill, the proposed excavation depths or deeper excavation may not be achieved due to wall cave ins, limited access, oil and gas equipment, electrical, structures or lines which may not be feasible or practicable to be removed due to safety concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the impacted soil is not accessible, the soil will be deferred until the abandonment of the facility.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,  
TETRA TECH

Ike Tavaréz, PG  
Senior Project Manager

cc: VPR Operating - Bob Pullen  
BLM - Jennifer Van Curen



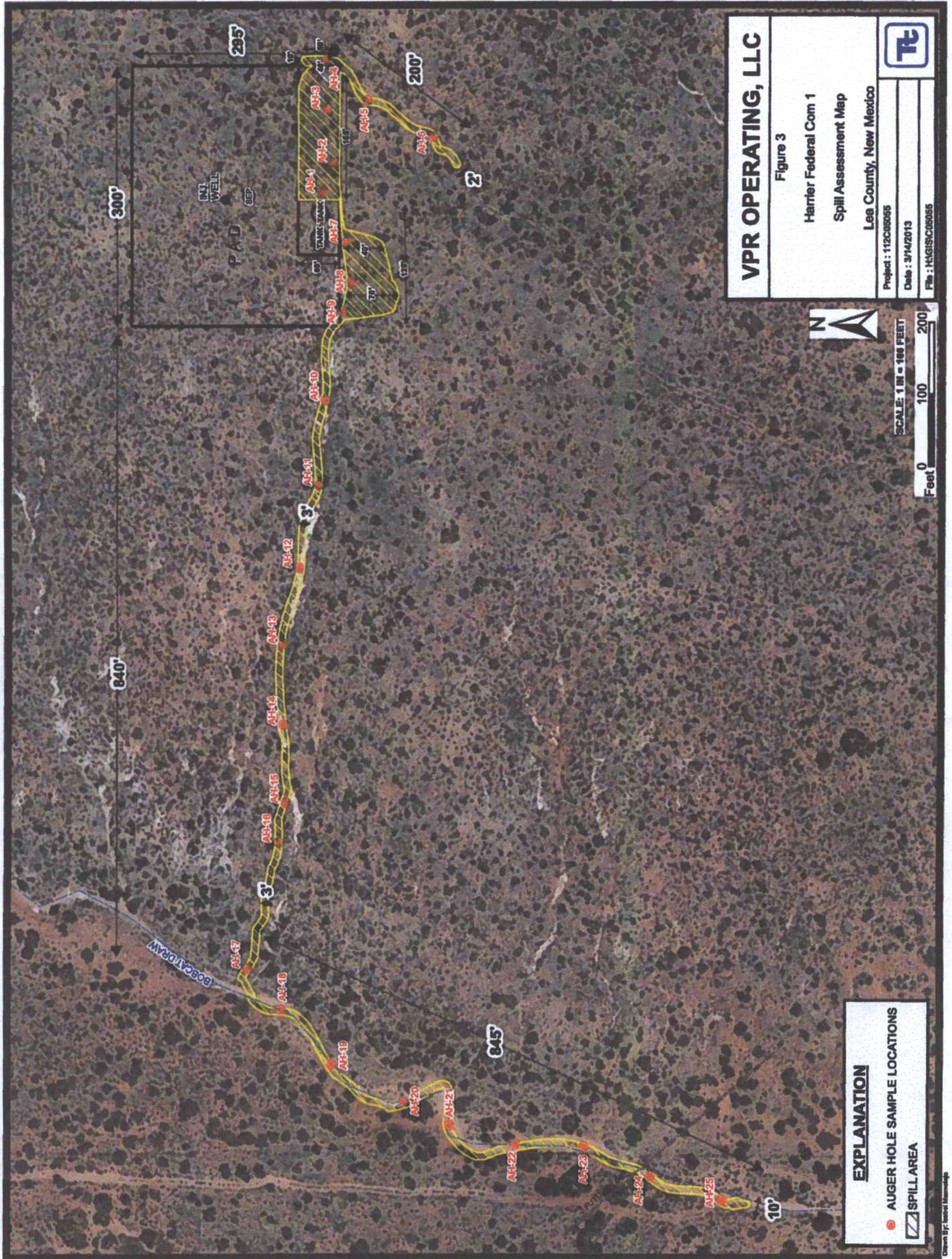
HARRIER  
FEDERAL  
COM 1

<b>VPR OPERATING, LLC</b>	
Figure 1	
Harrier Federal Com 1	
Overview Map	
Lea County, New Mexico	
Project : 112C05055	
Date : 3/7/2013	
File : H:\GIS\IC05055	

SCALE: 1 in = 8 miles  
0 20,000 40,000  
Feet



Drawn By: Isabel Hernandez



**VPR OPERATING, LLC**

Figure 3

Harrier Federal Com 1  
 Spill Assessment Map  
 Lee County, New Mexico



Project : 112C00055  
 Date : 3/14/2013  
 File : HNSIS/C00055



SCALE: 1 in = 100 FEET  
 Feet 0 100 200

**EXPLANATION**

- AUGER HOLE SAMPLE LOCATIONS
- ▨ SPILL AREA

**Table 1**  
**VPR Operating LLC.**  
**Harrier Federal Commingle #1**  
**Lea County, New Mexico**

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	2/28/2013	0-0.5	-	X		11,800	6,340	18,140	20.4	168	32.1	412	633	2,010
AH-2	2/28/2013	0-1	-	X		8,140	1,460	9,600	-	-	-	-	-	260
	"	1-1.5	-	X		2,840	2,100	4,940	-	-	-	-	-	450
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	310
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	55.1
AH-3	2/28/2013	0-0.5	-	X		13,800	16,300	30,100	14.2	168	33.1	480	695	330
AH-4	2/28/2013	0-1	-	X		5,160	3,590	8,750	-	-	-	-	-	165
AH-5	2/28/2013	0-0.5	-	X		4,760	6,240	11,000	-	-	-	-	-	<20.0
AH-6	2/28/2013	0-0.5	-	X		4,360	4,550	8,910	-	-	-	-	-	70.1
AH-7	2/28/2013	0-1	-	X		1,090	1,800	2,890	-	-	-	-	-	66.0
AH-8	2/28/2013	0-1	-	X		9,440	6,450	15,890	<2.00	68.7	16.7	167	252	<20.0
AH-9	2/28/2013	0-1	-	X		8,730	16,900	25,630	<0.400	43.8	15.2	216	275	76.2
AH-10	2/28/2013	0-1	-	X		2,960	4,680	7,640	-	-	-	-	-	615
AH-11	2/28/2013	0-0.5	-	X		10,900	9,830	20,730	<4.00	65.0	15.2	255	335	533

Table 1

VPR Operating LLC.  
 Harrier Federal Commingle #1  
 Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-12	2/28/2013	0-1	-	X		11,600	9,530	21,130	<2.00	77.0	19.7	273	370	<20.0
	"	1-1.5	-	X		10,200	13,600	23,800	4.90	122	26.3	359	512	909
AH-13	2/28/2013	0-1	-	X		12,700	8,640	21,340	<2.00	73.0	16.2	225	314	<20.0
	"	1-1.5	-	X		10,700	2,390	13,090	15.8	192	34.1	438	680	<20.0
	"	2-2.5	-	X		9,510	10,700	20,210	6.62	110	22.3	298	437	<20.0
AH-14	2/28/2013	0-0.5	-	X		10,500	3,710	14,210	-	-	-	-	-	113
AH-15	2/28/2013	0-1	-	X		10,800	8,510	19,310	<2.00	45.4	14.8	199	259	69.1
	"	1-1.5	-	X		6,300	6,270	12,570	<1.00	46.4	13.9	188	248	78.9
AH-16	2/28/2013	0-1	-	X		5,120	6,730	11,850	-	-	-	-	-	<20.0
	"	1-1.5	-	X		9,630	6,280	15,910	3.37	102	38.6	323	467	247
AH-17	2/28/2013	0-1	-	X		8,090	4,490	12,580	-	-	-	-	-	123
	"	1-1.5	-	X		2,280	3,380	5,660	-	-	-	-	-	104
	"	2-2.5	-	X		1,050	2,290	3,340	-	-	-	-	-	118
AH-18	2/28/2013	0-1	-	X		5,550	7,220	12,770	-	-	-	-	-	64.3
	"	1-1.5	-	X		4,560	5,420	9,980	-	-	-	-	-	<20.0
	"	2-2.5	-	X		7,350	2,410	9,760	-	-	-	-	-	29.7

Table 1

VPR Operating LLC.  
 Harrier Federal Commingle #1  
 Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-19	2/28/2013	0-1	-	X		7,950	4,790	12,740	-	-	-	-	-	133
	"	1-1.5	-	X		6,940	6,060	13,000	-	-	-	-	-	<20.0
AH-20	2/28/2013	0-1	-	X		3,790	3,740	7,530	-	-	-	-	-	<20.0
	"	1-1.5	-	X		6.89	110	117	-	-	-	-	-	104
AH-21	2/28/2013	0-1	-	X		5,050	7,200	12,250	-	-	-	-	-	34.6
	"	1-1.5	-	X		7,360	8,640	16,000	7.09	99.2	20.4	306	433	79.1
	"	1.5-2	-	X		8,660	1,880	10,540	<2.00	67.5	17.9	228	313	148
AH-22	2/28/2013	0-1	-	X		1,870	3,550	5,420	-	-	-	-	-	<20.0
	"	1-1.5	-	X		5,400	8,890	14,290	-	-	-	-	-	59.4
	"	2-2.5	-	X		10,200	12,900	23,100	<4.00	64.6	18.0	280	363	<20.0
	"	3-3.5	-	X		8,030	10,400	18,430	<2.00	61.2	15.3	212	289	<20.0
AH-23	"	4-4.5	-	X		20.6	93.7	114	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	2/28/2013	0-1	-	X		4,620	4,910	9,530	-	-	-	-	-	<20.0
	"	1-1.5	-	X		4,890	485	5,375	-	-	-	-	-	<20.0
	"	2-2.5	-	X		4,540	7,540	12,080	-	-	-	-	-	<20.0
	"	3-3.5	-	X		12.0	<50.0	12.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	29.7
"	4-4.5	-	X		<4.00	<50.0	<50.0	-	-	-	-	-	44.5	

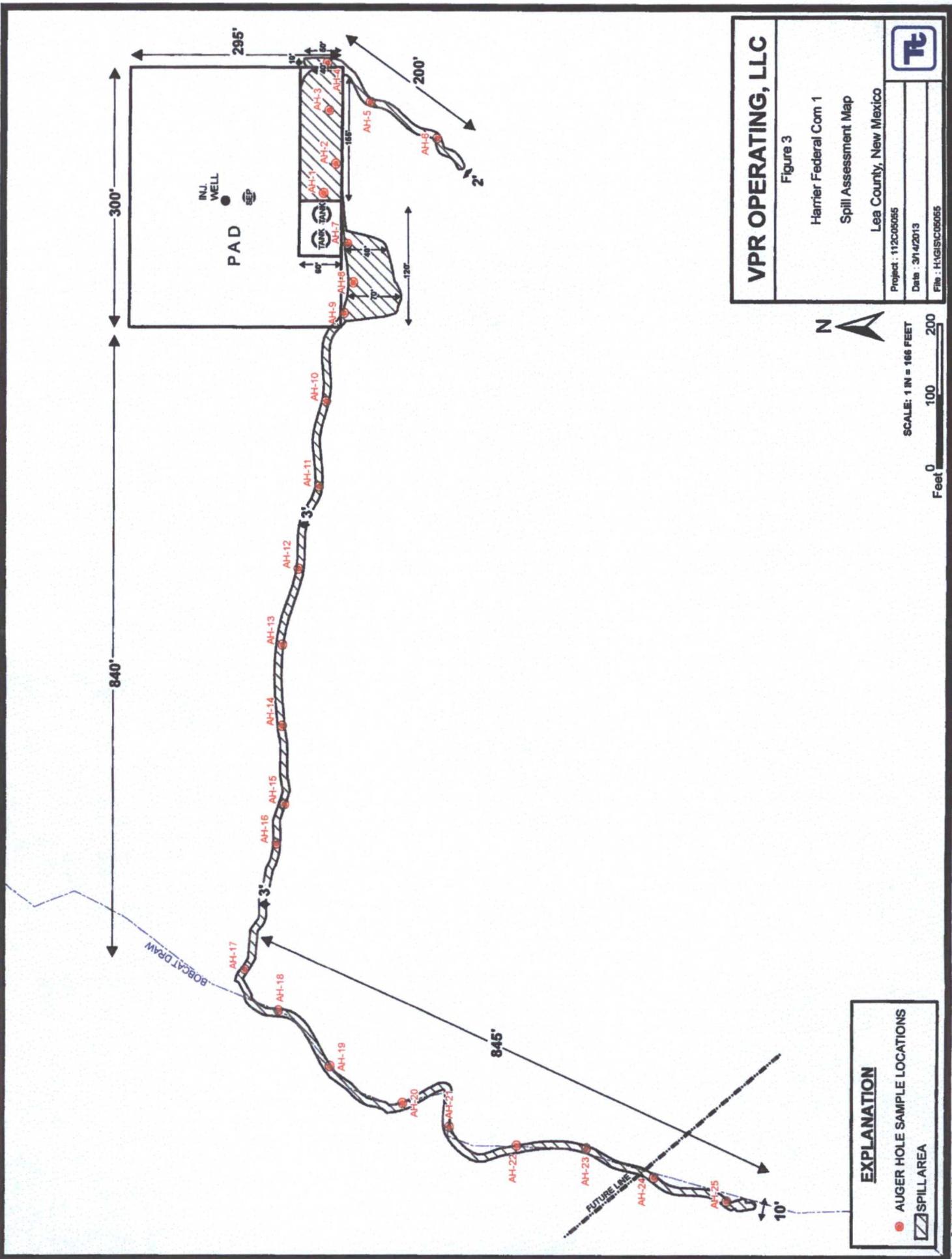
**Table 1**  
**VPR Operating LLC.**  
**Harrier Federal Commingle #1**  
**Lea County, New Mexico**

Sample ID	Sample Date	Sample Depth (ft)	BEB Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-24	2/28/2013	0-1	-	X		5.89	<50.0	5.89	-	-	-	-	-	<20.0
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	34.6
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	<20.0
AH-25	2/28/2013	0-1	-	X		4,700	7,700	12,400	-	-	-	-	-	<20.0
	"	1-1.5	-	X		2,480	3,660	6,140	-	-	-	-	-	<20.0
	"	2-2.5	-	X		26,000	10,800	36,800	<4.00	237	60.5	861	1,159	<20.0
	"	3-3.5	-	X		607	1,080	1,687	<0.100	1.13	0.782	14.0	15.9	<20.0
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	<20.0

( - ) Not Analyzed

(BEB) Below Excavation Bottom

Proposed Excavation Depths



**VPR OPERATING, LLC**

Figure 3

Hamier Federal Com 1  
Spill Assessment Map

Lea County, New Mexico

Project: 112C05055

Date: 3/14/2013

File: H:\GIS\C05055



SCALE: 1 IN = 166 FEET



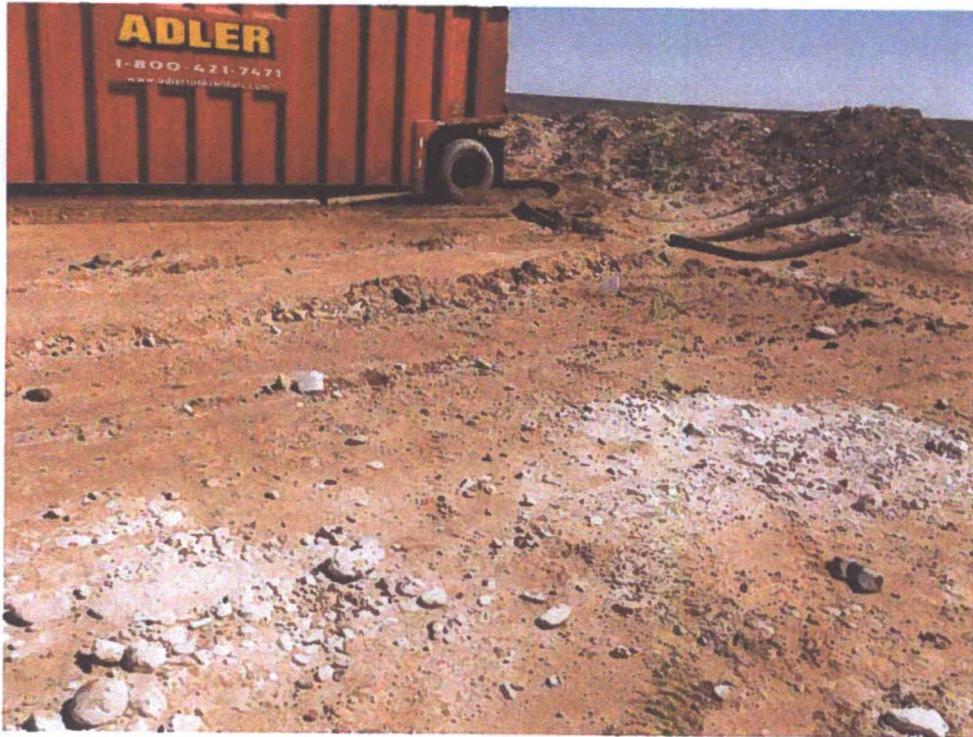
**EXPLANATION**

- AUGER HOLE SAMPLE LOCATIONS
- ▨ SPILL AREA

VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View Southeast – Area of AH-1



View East – Area of AH-2

VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View Northeast – Area of AH-3



View South – Area of AH-4

VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View Southwest – Area of AH-5



View Northeast – Area of AH-6

VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View West – Area of AH-7 and AH-8

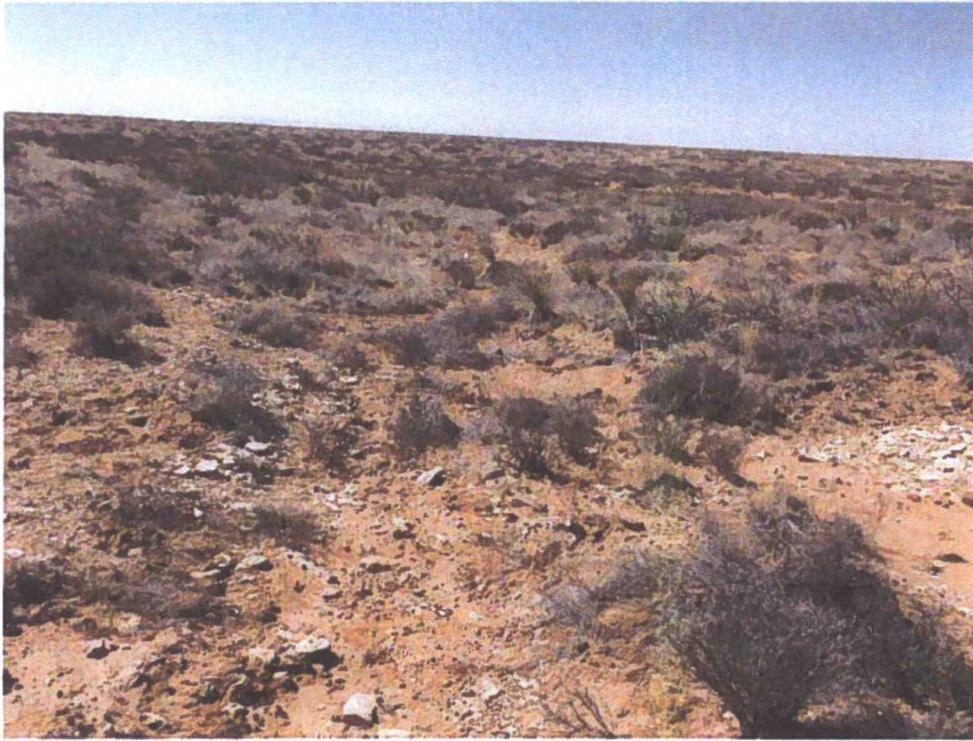


View West – Area of AH-9

VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View West – Area of AH-10



View West – Area of AH-11

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Harrier Federal Com 1  
Lea County, New Mexico



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View West – Area of AH-12



View West – Area of AH-13

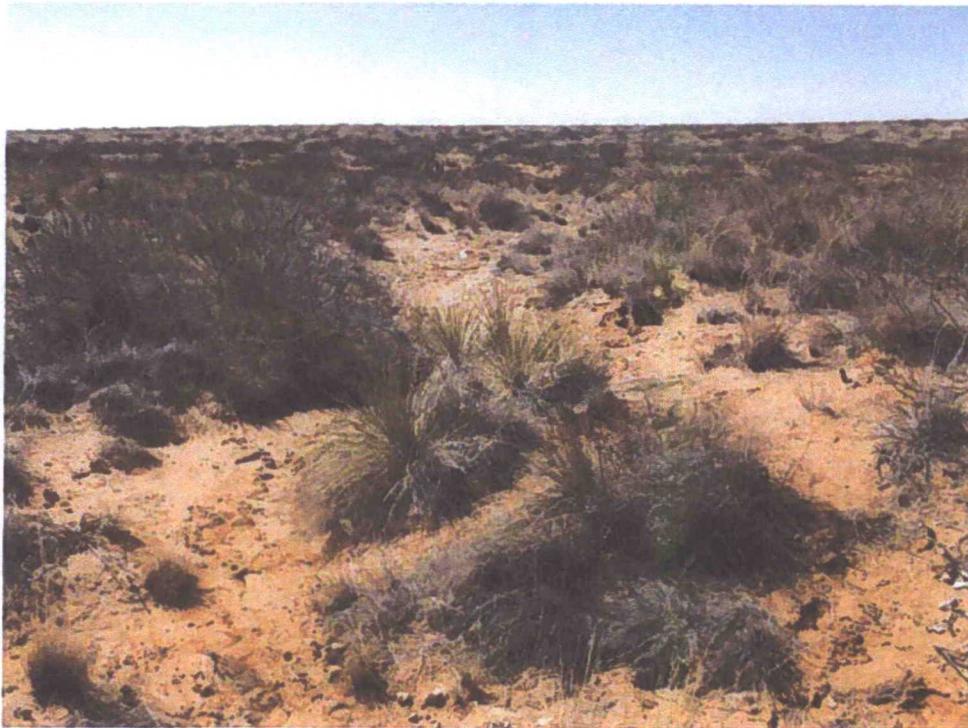
VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View West – Area of AH-14



View West – Area of AH-15

VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View West – Area of AH-16



View West – Area of AH-17

VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View Southwest – Area of AH-18



View Southwest – Area of AH-19

VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View Southwest – Area of AH-20



View Southwest – Area of AH-21

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Harrier Federal Com 1  
Lea County, New Mexico



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View Southwest – Area of AH-22



View Southwest – Area of AH-23

VPR Operating LLC  
Harrier Federal Com 1  
Lea County, New Mexico



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View Southwest – Area of AH-24



View Southwest – Area of AH-25