

ENVIRONMENTAL PLUS, INC.

2100 Ave 'O'
P.O. Box 1558
Eunice, NM 88231
ddominguezepi@gmail.com
Office: (575) 394-3481
Fax: (575) 394-2601



APPROVED

Site Characterization and Work Plan

**Vanguard
Bimini 13 State #4
Lea County, New Mexico
Unit Letter "F", Section 13, Township 17 South, Range 35 East
Latitude 32.83595 North, Longitude 103.412082 West
NMOCD Reference# 1RP-2755**

Prepared For:

Vanguard Operating, LLC
4001 Penbrook, Suite 201
Odessa, Texas 79762

Prepared By:

Environmental Plus, Inc.
2100 Ave 'O'
Eunice, NM 88231

August 2017

A handwritten signature in black ink, appearing to read 'Daniel Dominguez', is written over a horizontal line.

Daniel Dominguez
Project Manager



The following *Site Characterization and Work Plan* serves as a condensed update on field activities undertaken and proposed actions for the afore referenced Site.

Background:

The site is located in Unit Letter F (SE ¼ NW ¼), Section 13, Township 17 South, Range 35 East, approximately nine miles south of Lovington, in Lea County, New Mexico. The property is owned by Dar Angell.

The release site is located on the pad of an active well and lease road; latitude 32.83595 North, longitude 103.412082 West. Area Map, Site Location Map, and Sample/Site Map are included as Figure 1, Figure 2, and Figure 3, respectively. The Initial NMOCD Form C-141 indicates the connection on a frac tank leaked. The leak was immediately isolated and the connection was replaced. A vacuum truck was brought to the site and 30 barrels of standing fluids were recovered. The area affected was from the frac tank, across the location and flowed off the location pooling next to the lease road. The flow path area measured approximately 321' x 12'. The Initial NMOCD Form C-141 is included as Attachment IV.

NMOCD Site Classification:

A search for water wells was completed utilizing the USGS and New Mexico Office of the State Engineer's (NMOSE) websites. There are four wells located in the area surrounding the release site (reference *Table 1*). Also, one well (domestic, agriculture or public) and one body of surface water exist within a 1,000-foot radius of the release site (reference *Figure 2*). The USGS database indicates a water depth of 45 feet below ground surface (bgs) within a 216-meter radius (reference *Table 1*).

Utilizing this information, the NMOCD guidelines indicate the Bimini 13 State #4 release site to have a ranking score of fifty. Based on this score, the NMOCD Recommended Remedial Action Levels (RRALs) for delineation at this Site were determined as follows: Benzene – 10 mg/Kg, BTEX – 50 mg/Kg, TPH – 100 mg/Kg, and Chloride – 250 mg/Kg.

The affected area is on the western side of the well pad and on the lease road leading to the pad. This area is caliche approximately one foot thick compacted over sandy caliche.

Delineation Progress:

On June 29, 2017 EPI personnel mobilized on site to collect soil samples to determine the vertical extent of contamination. A total of twenty-three soil samples were collected from eight sample locations; SP1 – SP8. Soil samples from each sample location were sent to Cardinal Labs in Hobbs, New Mexico, for testing. Laboratory analytical results indicate chlorides above NMOCD RRALs at surface level at SP1 – SP3. Field testing indicates Chloride concentrations above NMOCD RRALs from surface level to ten feet bgs (reference *Figure 3* and *Table 2*).

Portions of select soil samples were field tested for organic vapors and chloride concentrations. Soil samples collected for field testing of organic vapors were placed in self-sealing polyethylene bags and allowed to equilibrate to ~70° F. Field testing of organic vapors utilized a Mini-Rae™ Photoionization Detector (PID) equipped with a 10.6 electron-volt (eV) calibrated for benzene

response. Chloride concentrations were determined via use of a LaMotte Chloride Kit (Titration Method).

Soil samples designated for laboratory analyses were collected into laboratory provided glass containers, labeled and inserted into self-sealing polyethylene bags, placed in a cooler, chilled and transported to an independent laboratory for quantification of contaminant concentrations under Chain-of-Custody protocol.

Proposed Actions:

Revegetation Plan:

As the area in question is on an active lease road and well pad, no seeding will be required.

Noxious Weed Management Plan:

In an effort to prevent the spread of noxious weeds such as African Rue, Siberian Elm, Jointed Goatgrass, Russian Olive, Camelthorn, Saltcedar, Starthistle varieties, Hoary Cress and Russian Knapweed, the area will be confirmed to be clear of any noxious weeds. If any are located they will be removed by hand and the area treated with an appropriate herbicide. After a period of three months the area will be examined for noxious weed growth and re-treated if any growth has occurred.

Following completion of NMOCD and NMSLO approved Proposed Actions, EPI will provide a detailed *Final Closure Report* to Vanguard, NMOCD, and NMSLO personnel. Vanguard and EPI personnel would welcome an opportunity to briefly discuss the *Work Plan* at your earliest convenience.

Should you have any questions or concerns please feel free to contact me at (575) 394-3481 or via e-mail at ddominguezepi@gmail.com or Mr. Chuck Johnston at (432) 202-4771 or via e-mail at cjohnston@vnrlc.com. All official communication should be addressed to:

Mr. Chuck Johnston
Vanguard
4001 Penbrook, Suite 2001
Odessa, Texas 79762

Sincerely,

ENVIRONMENTAL PLUS, INC.



Daniel Dominguez
Environmental Consultant

cc: Mike Bratcher, Environmental Specialist – NMOCD District 2, Hobbs, NM
Amber Groves, Remediation Specialist – NMSLO, Hobbs, NM
Chuck Johnston, EHS – Vanguard
File

Encl.: Figure 1 – Area Map
Figure 2 – Site Location Map
Figure 3 – Sample/Site Map
Table 1 – Well Data
Table 2 – Summary of Soil Sample Field Testing and Laboratory Analytical Results
Attachment I – Photographs
Attachment II – NMOSE Average Depth to Groundwater
Attachment III – Laboratory Analytical Results
Attachment IV – Copy of Initial NMOCD Form C-141

FIGURES

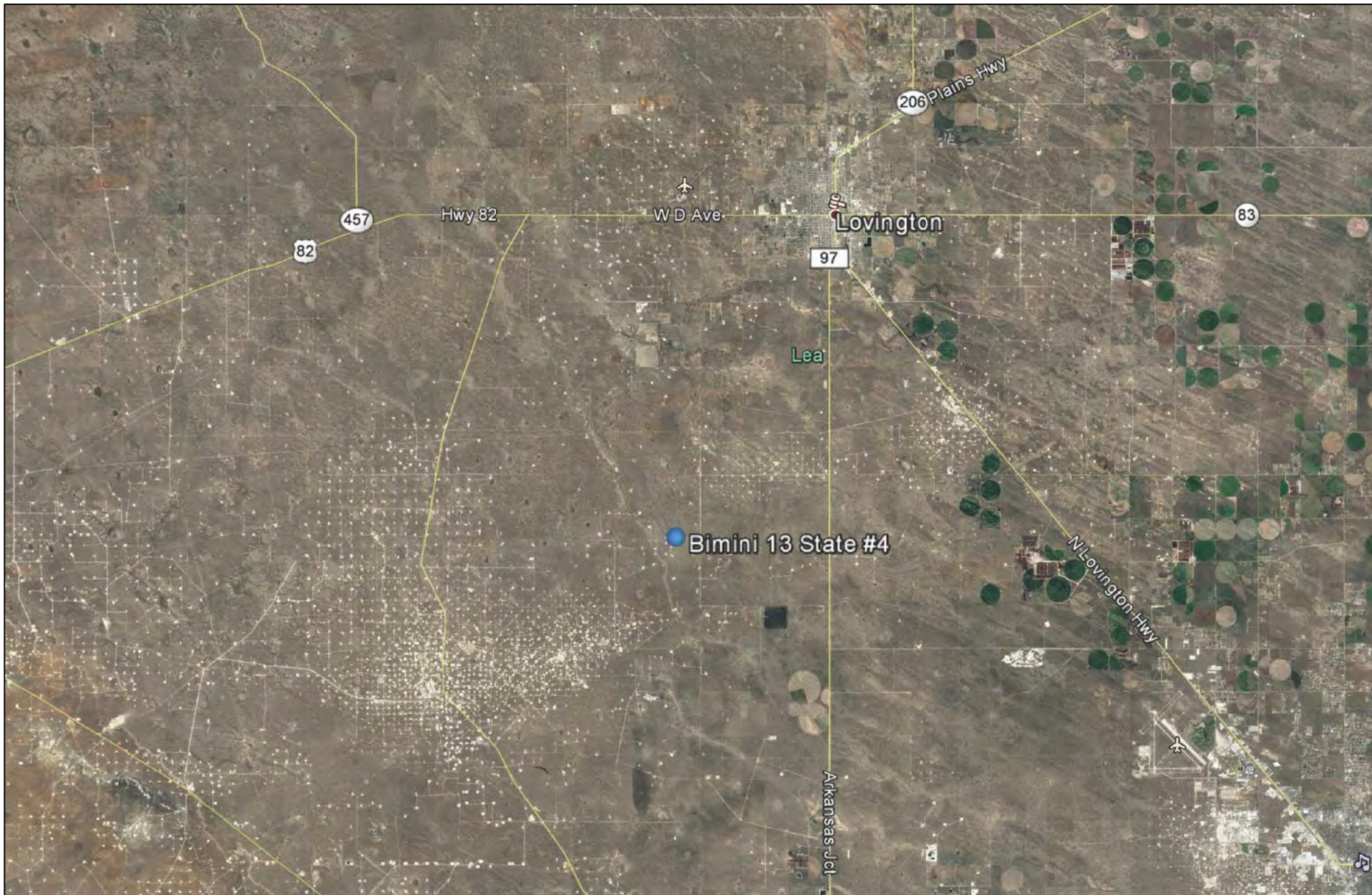
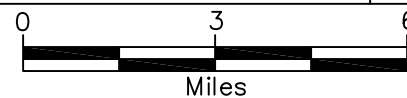


Figure 1
Area Map
Vanguard
Bimini 13 State #4

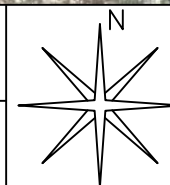
Lea County, New Mexico
SE 1/4 of NW 1/4, Sec. 13, T17S, R35E
N 32° 50' 09.61" W 103° 24' 43.90"
Elevation: 3,926 feet amsl

DWG By: D Dominguez
August 2017

REVISED:



SHEET
1 of 1



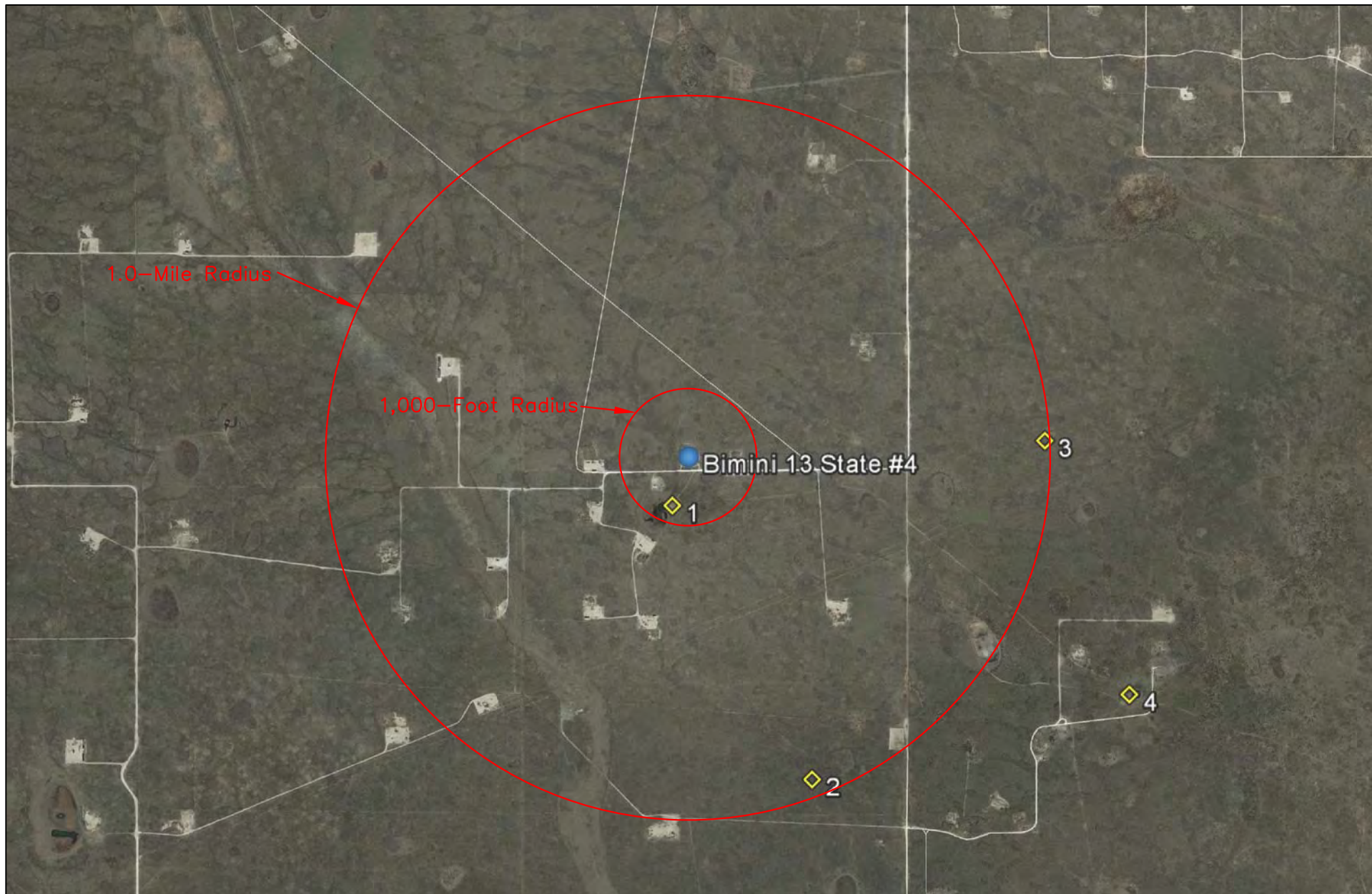
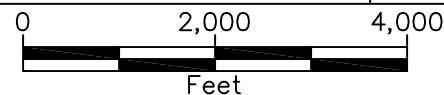


Figure 2
Site Location Map
Vanguard
Bimini 13 State #4

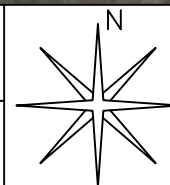
Lea County, New Mexico
SE 1/4 of NW 1/4, Sec. 13, T17S, R35E
N 32° 50' 09.61" W 103° 24' 43.90"
Elevation: 3,926 feet amsl

DWG By: D Dominguez
August 2017

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SHEET
1 of 1






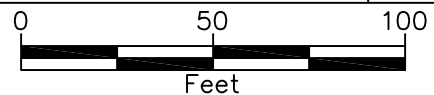
LEGEND	
XSP1	Sample Location
	Proposed Excavation (~3,000 sq.ft.)

Figure 3
Site/Sample Map
Vanguard
Bimini 13 State #4

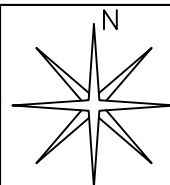
Lea County, New Mexico
SE 1/4 of NW 1/4, Sec. 13, T17S, R35E
N 32° 50' 09.61" W 103° 24' 43.90"
Elevation: 3,926 feet amsl

DWG By: D Dominguez
August 2017

REVISED:



SHEET
1 of 1



TABLES

TABLE 1**Well Data****Vanguard - Bimini 13 State #4**

Ref #	Well Number	Use	Diversion ^A	Owner	q64	q16	q4	Sec	Twsp	Rng	Easting	Northing	Distance ^B	Date Measured	Surface Elevation ^C	Depth to Water
																(ft bgs)
1	USGS 1				2	2	3	13	17S	35E	648541	3634017	216	09-Feb-96	3,924	45
2	L 04503	PRO	0	TRI SERVICE DRILLING CO			2	24	17S	35E	649145	3632884	1,443	10-Sep-60	3,910	43
3	L 04171	PRO	0	NORWOOD DRILLING COMPANY		4	1	18	17S	36E	650102	3634311	1,496	09-Jun-59	3,903	128
4	USGS 2				1	1	2	19	17S	36E	650475	3633258	2,066	16-Jan-86	3,893	37

Data obtained from the New Mexico Office of the State Engineer and USGS Websites

^A = In acre feet per annum

^B = In meters

^C = Elevation interpolated from Google Earth based on referenced location

PRO = 72-12-1 Prospecting or development of Natural Resource

quarters are 1=NW, 2=NE, 3=SW, 4=SE; quarters are smallest to biggest

TABLE 2
Summary of Soil Sample Field Testing and Laboratory Analytical Results
Vanguard
Bimini 13 State #4

Lab Sample ID	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	GRO C6-C10 (mg/Kg)	DRO C10-C28 (mg/Kg)	EXT DRO C28-C36 (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
SP1	8"	In-Situ	29-Jun-17	0.0	480	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	384
	3	In-Situ	29-Jun-17	0.0	400	--	--	--	--	--	--	--	--	--	--
	5	In-Situ	29-Jun-17	0.0	480	--	--	--	--	--	--	--	--	--	--
	8	In-Situ	29-Jun-17	0.0	320	--	--	--	--	--	--	--	--	--	--
	11	In-Situ	29-Jun-17	0.0	240	--	--	--	--	--	--	--	--	--	--
	14	In-Situ	29-Jun-17	0.0	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	64
SP2	8"	In-Situ	29-Jun-17	0.0	280	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	352
	3	In-Situ	29-Jun-17	0.0	880	--	--	--	--	--	--	--	--	--	--
	5	In-Situ	29-Jun-17	0.0	800	--	--	--	--	--	--	--	--	--	--
	8	In-Situ	29-Jun-17	0.0	480	--	--	--	--	--	--	--	--	--	--
	14	In-Situ	29-Jun-17	0.0	240	--	--	--	--	--	--	--	--	--	--
	18	In-Situ	29-Jun-17	0.0	80	<0.050	<0.050	0.060	<0.150	<0.300	<10.0	<10.0	--	<20.0	48
SP3	8"	In-Situ	29-Jun-17	0.0	320	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	288
	3	In-Situ	29-Jun-17	0.0	400	--	--	--	--	--	--	--	--	--	--
	5	In-Situ	29-Jun-17	0.0	480	--	--	--	--	--	--	--	--	--	--
	10	In-Situ	29-Jun-17	0.0	320	--	--	--	--	--	--	--	--	--	--
	15	In-Situ	29-Jun-17	0.0	240	--	--	--	--	--	--	--	--	--	--
	18	In-Situ	29-Jun-17	0.0	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	64

TABLE 2
Summary of Soil Sample Field Testing and Laboratory Analytical Results
Vanguard
Bimini 13 State #4

Lab Sample ID	Depth (feet)	Soil Status	Sample Date	PID Reading (ppm)	Field Chloride (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Total BTEX (mg/Kg)	GRO C6-C10 (mg/Kg)	DRO C10-C28 (mg/Kg)	EXT DRO C28-C36 (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
SP4	8"	In-Situ	29-Jun-17	0.0	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	48
SP5	8"	In-Situ	29-Jun-17	0.0	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	128
SP6	8"	In-Situ	29-Jun-17	0.0	160	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	176
SP7	8"	In-Situ	29-Jun-17	0.0	160	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	112
SP8	8"	In-Situ	29-Jun-17	0.0	80	<0.050	<0.050	0.060	<0.150	<0.300	<10.0	<10.0	--	<20.0	80
NMOCD Recommended Remedial Action Levels				100		10				50				100	250

-- = Not Analyzed

Bold values are in excess of NMOCD Recommended Remedial Action Levels

ATTACHMENTS

ATTACHMENT I
Photographs



Photograph #1- Well pad area



Photograph #2- Well pad area



Photograph #3- Well pad area



Photograph #4- Well pad area



Photograph #5- Well pad area



Photograph #6- Well pad area



Photograph #7- Well pad area



Photograph #8- Well less than 1,000' from location

ATTACHMENT II
NMOSE Average Depth to Groundwater



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 04503	L	LE		2	24	17S	35E			649145	3632884*	1443	90	43	47
L 04171	L	LE		4	1	18	17S	36E		650102	3634311*	1496	128	128	0

Average Depth to Water: **85 feet**

Minimum Depth: **43 feet**

Maximum Depth: **128 feet**

Record Count: 2

UTMNAD83 Radius Search (in meters):

Easting (X): 648608.25

Northing (Y): 3634223.83

Radius: 2000

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

ATTACHMENT III
Laboratory Analytical Results



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 10, 2017

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: BIMINI 13

Enclosed are the results of analyses for samples received by the laboratory on 07/03/17 15:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

Environmental Plus, Inc.
Daniel Dominguez
P.O. Box 1558
Eunice NM, 88231
Fax To: (505) 394-2601

Received: 07/03/2017
Reported: 07/10/2017
Project Name: BIMINI 13
Project Number: STATE #4
Project Location: VANGUARD

Sampling Date: 06/29/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ (SURFACE) (H701734-01)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/05/2017	ND	2.14	107	2.00	2.31	
Toluene*	<0.050	0.050	07/05/2017	ND	2.02	101	2.00	4.13	
Ethylbenzene*	<0.050	0.050	07/05/2017	ND	2.07	104	2.00	2.34	
Total Xylenes*	<0.150	0.150	07/05/2017	ND	6.12	102	6.00	1.37	
Total BTX	<0.300	0.300	07/05/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	384	16.0	07/05/2017	ND	448	112	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 80.7 % 28.3-164

Surrogate: 1-Chlorooctadecane 81.8 % 34.7-157

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 Environmental Plus, Inc.
 Daniel Dominguez
 P.O. Box 1558
 Eunice NM, 88231
 Fax To: (505) 394-2601

 Received: 07/03/2017
 Reported: 07/10/2017
 Project Name: BIMINI 13
 Project Number: STATE #4
 Project Location: VANGUARD

 Sampling Date: 06/29/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 1 @ (14') (H701734-02)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/05/2017	ND	2.14	107	2.00	2.31		
Toluene*	<0.050	0.050	07/05/2017	ND	2.02	101	2.00	4.13		
Ethylbenzene*	<0.050	0.050	07/05/2017	ND	2.07	104	2.00	2.34		
Total Xylenes*	<0.150	0.150	07/05/2017	ND	6.12	102	6.00	1.37		
Total BTEX	<0.300	0.300	07/05/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	07/05/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 86.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 83.1 % 34.7-157

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Environmental Plus, Inc.
Daniel Dominguez
P.O. Box 1558
Eunice NM, 88231
Fax To: (505) 394-2601

Received: 07/03/2017
Reported: 07/10/2017
Project Name: BIMINI 13
Project Number: STATE #4
Project Location: VANGUARD

Sampling Date: 06/29/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ (SURFACE) (H701734-03)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/05/2017	ND	2.14	107	2.00	2.31	
Toluene*	<0.050	0.050	07/05/2017	ND	2.02	101	2.00	4.13	
Ethylbenzene*	<0.050	0.050	07/05/2017	ND	2.07	104	2.00	2.34	
Total Xylenes*	<0.150	0.150	07/05/2017	ND	6.12	102	6.00	1.37	
Total BTEx	<0.300	0.300	07/05/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	352	16.0	07/05/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 69.5 % 28.3-164

Surrogate: 1-Chlorooctadecane 64.2 % 34.7-157

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Environmental Plus, Inc.
Daniel Dominguez
P.O. Box 1558
Eunice NM, 88231
Fax To: (505) 394-2601

Received: 07/03/2017
Reported: 07/10/2017
Project Name: BIMINI 13
Project Number: STATE #4
Project Location: VANGUARD

Sampling Date: 06/29/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 2 @ (18') (H701734-04)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/05/2017	ND	2.14	107	2.00	2.31		
Toluene*	<0.050	0.050	07/05/2017	ND	2.02	101	2.00	4.13		
Ethylbenzene*	<0.050	0.050	07/05/2017	ND	2.07	104	2.00	2.34		
Total Xylenes*	<0.150	0.150	07/05/2017	ND	6.12	102	6.00	1.37		
Total BTEX	<0.300	0.300	07/05/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	07/05/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 103 % 28.3-164

Surrogate: 1-Chlorooctadecane 102 % 34.7-157

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Analytical Results For:

Environmental Plus, Inc.
Daniel Dominguez
P.O. Box 1558
Eunice NM, 88231
Fax To: (505) 394-2601

Received: 07/03/2017
Reported: 07/10/2017
Project Name: BIMINI 13
Project Number: STATE #4
Project Location: VANGUARD

Sampling Date: 06/29/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 3 @ (SURFACE) (H701734-05)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/05/2017	ND	2.14	107	2.00	2.31	
Toluene*	<0.050	0.050	07/05/2017	ND	2.02	101	2.00	4.13	
Ethylbenzene*	<0.050	0.050	07/05/2017	ND	2.07	104	2.00	2.34	
Total Xylenes*	<0.150	0.150	07/05/2017	ND	6.12	102	6.00	1.37	
Total BTEx	<0.300	0.300	07/05/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 102 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	288	16.0	07/05/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 81.1 % 28.3-164

Surrogate: 1-Chlorooctadecane 77.1 % 34.7-157

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Analytical Results For:

 Environmental Plus, Inc.
 Daniel Dominguez
 P.O. Box 1558
 Eunice NM, 88231
 Fax To: (505) 394-2601

 Received: 07/03/2017
 Reported: 07/10/2017
 Project Name: BIMINI 13
 Project Number: STATE #4
 Project Location: VANGUARD

 Sampling Date: 06/29/2017
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SP 3 @ (18') (H701734-06)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/05/2017	ND	2.14	107	2.00	2.31		
Toluene*	<0.050	0.050	07/05/2017	ND	2.02	101	2.00	4.13		
Ethylbenzene*	<0.050	0.050	07/05/2017	ND	2.07	104	2.00	2.34		
Total Xylenes*	<0.150	0.150	07/05/2017	ND	6.12	102	6.00	1.37		
Total BTEx	<0.300	0.300	07/05/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	64.0	16.0	07/05/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 92.3 % 28.3-164

Surrogate: 1-Chlorooctadecane 88.9 % 34.7-157

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Analytical Results For:

Environmental Plus, Inc.
Daniel Dominguez
P.O. Box 1558
Eunice NM, 88231
Fax To: (505) 394-2601

Received: 07/03/2017
Reported: 07/10/2017
Project Name: BIMINI 13
Project Number: STATE #4
Project Location: VANGUARD

Sampling Date: 06/29/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 4 @ (8") (H701734-07)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/05/2017	ND	2.14	107	2.00	2.31	
Toluene*	<0.050	0.050	07/05/2017	ND	2.02	101	2.00	4.13	
Ethylbenzene*	<0.050	0.050	07/05/2017	ND	2.07	104	2.00	2.34	
Total Xylenes*	<0.150	0.150	07/05/2017	ND	6.12	102	6.00	1.37	
Total BTEx	<0.300	0.300	07/05/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	48.0	16.0	07/05/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 82.2 % 28.3-164

Surrogate: 1-Chlorooctadecane 75.6 % 34.7-157

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Analytical Results For:

Environmental Plus, Inc.
Daniel Dominguez
P.O. Box 1558
Eunice NM, 88231
Fax To: (505) 394-2601

Received: 07/03/2017
Reported: 07/10/2017
Project Name: BIMINI 13
Project Number: STATE #4
Project Location: VANGUARD

Sampling Date: 06/29/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 5 @ (8") (H701734-08)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/05/2017	ND	2.14	107	2.00	2.31		
Toluene*	<0.050	0.050	07/05/2017	ND	2.02	101	2.00	4.13		
Ethylbenzene*	<0.050	0.050	07/05/2017	ND	2.07	104	2.00	2.34		
Total Xylenes*	<0.150	0.150	07/05/2017	ND	6.12	102	6.00	1.37		
Total BTEx	<0.300	0.300	07/05/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	07/05/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 67.4 % 28.3-164

Surrogate: 1-Chlorooctadecane 61.7 % 34.7-157

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Analytical Results For:

Environmental Plus, Inc.
Daniel Dominguez
P.O. Box 1558
Eunice NM, 88231
Fax To: (505) 394-2601

Received: 07/03/2017
Reported: 07/10/2017
Project Name: BIMINI 13
Project Number: STATE #4
Project Location: VANGUARD

Sampling Date: 06/29/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 6 @ (8") (H701734-09)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/05/2017	ND	2.14	107	2.00	2.31		
Toluene*	<0.050	0.050	07/05/2017	ND	2.02	101	2.00	4.13		
Ethylbenzene*	<0.050	0.050	07/05/2017	ND	2.07	104	2.00	2.34		
Total Xylenes*	<0.150	0.150	07/05/2017	ND	6.12	102	6.00	1.37		
Total BTEx	<0.300	0.300	07/05/2017	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	176	16.0	07/05/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 82.9 % 28.3-164

Surrogate: 1-Chlorooctadecane 79.4 % 34.7-157

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Analytical Results For:

Environmental Plus, Inc.
Daniel Dominguez
P.O. Box 1558
Eunice NM, 88231
Fax To: (505) 394-2601

Received: 07/03/2017
Reported: 07/10/2017
Project Name: BIMINI 13
Project Number: STATE #4
Project Location: VANGUARD

Sampling Date: 06/29/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 7@ (8") (H701734-10)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/06/2017	ND	2.06	103	2.00	0.235	
Toluene*	<0.050	0.050	07/06/2017	ND	1.93	96.3	2.00	0.000365	
Ethylbenzene*	<0.050	0.050	07/06/2017	ND	2.00	99.9	2.00	0.339	
Total Xylenes*	<0.150	0.150	07/06/2017	ND	5.99	99.8	6.00	0.507	
Total BTEX	<0.300	0.300	07/06/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 72-148

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	112	16.0	07/05/2017	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 109 % 28.3-164

Surrogate: 1-Chlorooctadecane 106 % 34.7-157

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Environmental Plus, Inc.
Daniel Dominguez
P.O. Box 1558
Eunice NM, 88231
Fax To: (505) 394-2601

Received: 07/03/2017
Reported: 07/10/2017
Project Name: BIMINI 13
Project Number: STATE #4
Project Location: VANGUARD

Sampling Date: 06/29/2017
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Tamara Oldaker

Sample ID: SP 8 @ (8") (H701734-11)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/06/2017	ND	2.06	103	2.00	0.235	
Toluene*	<0.050	0.050	07/06/2017	ND	1.93	96.3	2.00	0.000365	
Ethylbenzene*	<0.050	0.050	07/06/2017	ND	2.00	99.9	2.00	0.339	
Total Xylenes*	<0.150	0.150	07/06/2017	ND	5.99	99.8	6.00	0.507	
Total BTEx	<0.300	0.300	07/06/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 72-148

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	80.0	16.0	07/05/2017	ND	448	112	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	07/05/2017	ND	180	90.2	200	2.74	
DRO >C10-C28	<10.0	10.0	07/05/2017	ND	198	99.0	200	1.48	

Surrogate: 1-Chlorooctane 93.8 % 28.3-164

Surrogate: 1-Chlorooctadecane 89.8 % 34.7-157

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Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celey D. Keene, Lab Director/Quality Manager

Environmental Plus, Inc.

2100 Avenue O, Eunice, NM 88231
(575) 394-3481 FAX: (575) 394-2601

P.O. Box 1558, Eunice, NM 88231

Chain of Custody Form
LAB Cardinal

Company Name Environmental Plus, Inc.

EPI Project Manager Daniel Dominguez

Mailing Address P.O. BOX 1558

City, State, Zip Eunice New Mexico 88231

EPI Phone#/Fax# 575-394-3481 / 575-394-2601

Client Company Vanguard

Facility Name Bimini 13 State #4

Location

Project Reference

EPI Sampler Name Dustin Crockett

Attn: Daniel Dominguez

P.O. Box 1558

Eunice, NM 88231


Bill To

ANALYSIS REQUEST



EPI Project Manager		Daniel Dominguez	
Mailing Address		P.O. BOX 1558	
City, State, Zip		Eunice New Mexico 88231	
EPI Phone#/Fax#		575-394-3481 / 575-394-2601	
Client Company		Vanguard	
Facility Name		Bimini 13 State #4	
Location			
Project Reference			
EPI Sampler Name		Dustin Crockett	

Attn: Daniel Dominguez
P.O. Box 1558
Eunice, NM 88231



LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX							PRESERV.	SAMPLING		BTEX 8021B	TPH 8015M	CHLORIDES (Cl ⁻)	SULFATES (SO ₄ ²⁻)	pH	TCLP	OTHER >>>	PAH	
				GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE		ICE/COOL	OTHER									DATE
H701734	1 SP1 (Surface)	G	1			X					X		29-Jun-17	7:15	X	X	X					
	2 SP1 (14')	G	1			X					X		29-Jun-17	8:00	X	X	X					
	3 SP2 (Surface)	G	1			X					X		29-Jun-17	8:15	X	X	X					
	4 SP2 (18')	G	1			X					X		29-Jun-17	9:15	X	X	X					
	5 SP3 (Surface)	G	1			X					X		29-Jun-17	9:35	X	X	X					
	6 SP3 (18')	G	1			X					X		29-Jun-17	10:50	X	X	X					
	7 SP4 (8")	G	1			X					X		29-Jun-17	11:30	X	X	X					
	8 SP5 (8")	G	1			X					X		29-Jun-17	11:48	X	X	X					
	9 SP6 (8")	G	1			X					X		29-Jun-17	12:00	X	X	X					
	10 SP7 (8")	G	1			X					X		29-Jun-17	13:15	X	X	X					

E-mail results to: ddominguezepi@gmail.com & cjohnston@vnrllc.com
& bboone.epi@gmail.com

NOTES:

Relinquished by:

Date 7-3-17
Time 6:00 am

Received By: (lab staff)

Signature

Delivered by:

-11.48

Sample Cool & Intact
Yes

Checked By:

Signature

Chain of Custody Form

LAB
Cardinal

ANALYSIS REQUEST

Page 15 of 15

ATTACHMENT IV
Copy of Initial NMOCD Form C-141

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

HOBBS OCD

NOV 01 2011

RECEIVED

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company : LIME ROCK RESOURCES A, L.P	Contact : Jerry Smith
Address : 1111 Bagby Street Suite 4600, Houston, TX 77002	Telephone No. : 575-748-9724
Facility Name : BIMINI 13 STATE #004	Facility Type:

Surface Owner : Dar Angell	Mineral Owner: State	Lease No. : API #30-025-35150
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LOCATION OF RELEASE

Unit Letter F	Section 13	Township 17S	Range 35E	Feet from the 2225	North/South Line FNL	Feet from the 2310	East/West Line FWL	County : LEA
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Latitude 32.83595 Longitude -103.412082

NATURE OF RELEASE

Type of Release : 2% KCL Water	Volume of Release : 45 bbls	Volume Recovered: 30 bbls
Source of Release : Connection on Frac Tank	Date and Hour of Occurrence: 10/03/11 7:30 am	Date and Hour of Discovery: 10/03/11 7:30 am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? NMOCD District I - Geoffrey Leking by voicemail	
By Whom? Mike Stubblefield	Date and Hour : 10/03/11 11:30 am	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

CW @ 45'

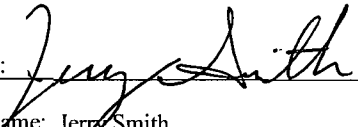
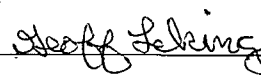
Describe Cause of Problem and Remedial Action Taken.*

The connection on a frac tank leaked. The leak was immediately isolated and the connection was replaced. A vacuum truck was brought to the site and 30 barrels of standing fluids were recovered. Most of the release was potassium chloride (about 70%). Talon/LPE was contacted to do a soil analysis; a sample was immediately taken to Cardinal Laboratories.

Describe Area Affected and Cleanup Action Taken.*

The area affected was from the frac tank, across the location and flowed off the location pooling next to the lease road. The flow path area measured approximately 321'x12'. Talon/LPE has been contracted to construct a work plan for the correction of the release.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Jerry Smith	Approved by District Supervisor 	
Title: Assistant Production Supervisor	Approval Date: 11/9/11	Expiration Date: 01/09/12
E-mail Address: jsmith@limerockresources.com	Conditions of Approval: SUBMIT FINAL C-141 BY 01/11/12	Attached <input type="checkbox"/>
Date: 10/27/11 Phone: 575-748-9724	IRP 11-11-2755	

* Attach Additional Sheets If Necessary