

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., 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

Form C-141  
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in  
accordance with 19.15.29 NMAC.

**Release Notification and Corrective Action**

**OPERATOR**

☐ Initial Report ☒ Final Report

Name of Company: Vanguard	Contact: Chuck Johnston	
Address: 4001 Penbrook, Suite 201, Odessa Texas 79762	Telephone No. 432-202-4771	
Facility Name: Bimini 13 State #4	Facility Type: Tank Battery	
Surface Owner: Dar Angell	Mineral Owner: State	API No. 30-025-35150

**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: N 32.83595° Longitude: W 103.412082°

**NATURE OF RELEASE**

Type of Release: 2% KCL water	Volume of Release: 45 bbl.	Volume Recovered: 30 bbl.
Source of Release: Connection on Frac Tank	Date and Hour of Occurrence: 10/3/2011 7:30 A.M.	Date and Hour of Discovery: 10/3/2011 7:30am
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Geoffrey Leking Voicemail	
By Whom? Mike Stubblefield	Date and Hour: 10/3/2011 11:30 am	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse: Not Applicable	
If a Watercourse was Impacted, Describe Fully.* Not Applicable		



**APPROVED**

**By Olivia Yu at 7:44 am, Oct 03, 2018**

Describe Cause of Problem and Remedial Action Taken.\*  
The connection on a frac tank leaked. The lead was immediately isolated and the connection was replaced. A vacuum truck was brought to the site and 30 bbl. of standing fluid 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.\*  
EPI was contacted to sample the location to see if we could find contamination. We found the area around sample point two to be above allowable limits. We dug out sample point two to four ft. Bgs took conformation sample and installed a 20-mil liner and backfilled excavation.

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: 		<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Chuck Johnston		Approved by Environmental Specialist: 	
Title: EHS	Approval Date: 10/3/2018	Expiration Date: xx/xx/xxxx	
E-mail Address: cjohnston@vnrllc.com	Conditions of Approval: NMSLO approval		Attached <input type="checkbox"/>
Date: 10-18-17	Phone: 432-202-4771		

\* Attach Additional Sheets If Necessary

1RP-2755



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.

**Completed Action:**

EPI mobilized on the Bimini 13 State #4 with equipment and excavated an area approximately ten ft. wide by fifteen ft. long to 4 ft. bgs. Once excavation activity was complete a conformation sample was taken at the bottom of the excavation. Sample was taken to Cardinal labs in Hobbs, NM, and method 300 was ran on the soil for closure. Soil was then hauled to a state approved disposal facility. A 20-mil liner was installed with a topsoil base to protect liner, then caliche was used to backfill remainder of excavation.

**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 via e-mail at [bboone.epi@gmail.com](mailto:bboone.epi@gmail.com) or Mr. Chuck Johnston at (432) 202-4771 or via e-mail at [cjohnston@vnrlc.com](mailto: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.

Brandon Boone  
Environmental Consultant

cc: Olivia Yu, Environmental Specialist – NMOCD District 1, Hobbs, NM  
Amber Groves, Remediation Specialist – NMSLO, Hobbs, NM  
Chuck Johnston, EHS – Vanguard  
File

Encl.: Figure 1 – Area Map  
Figure 2 – Site Location 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		
		<div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div>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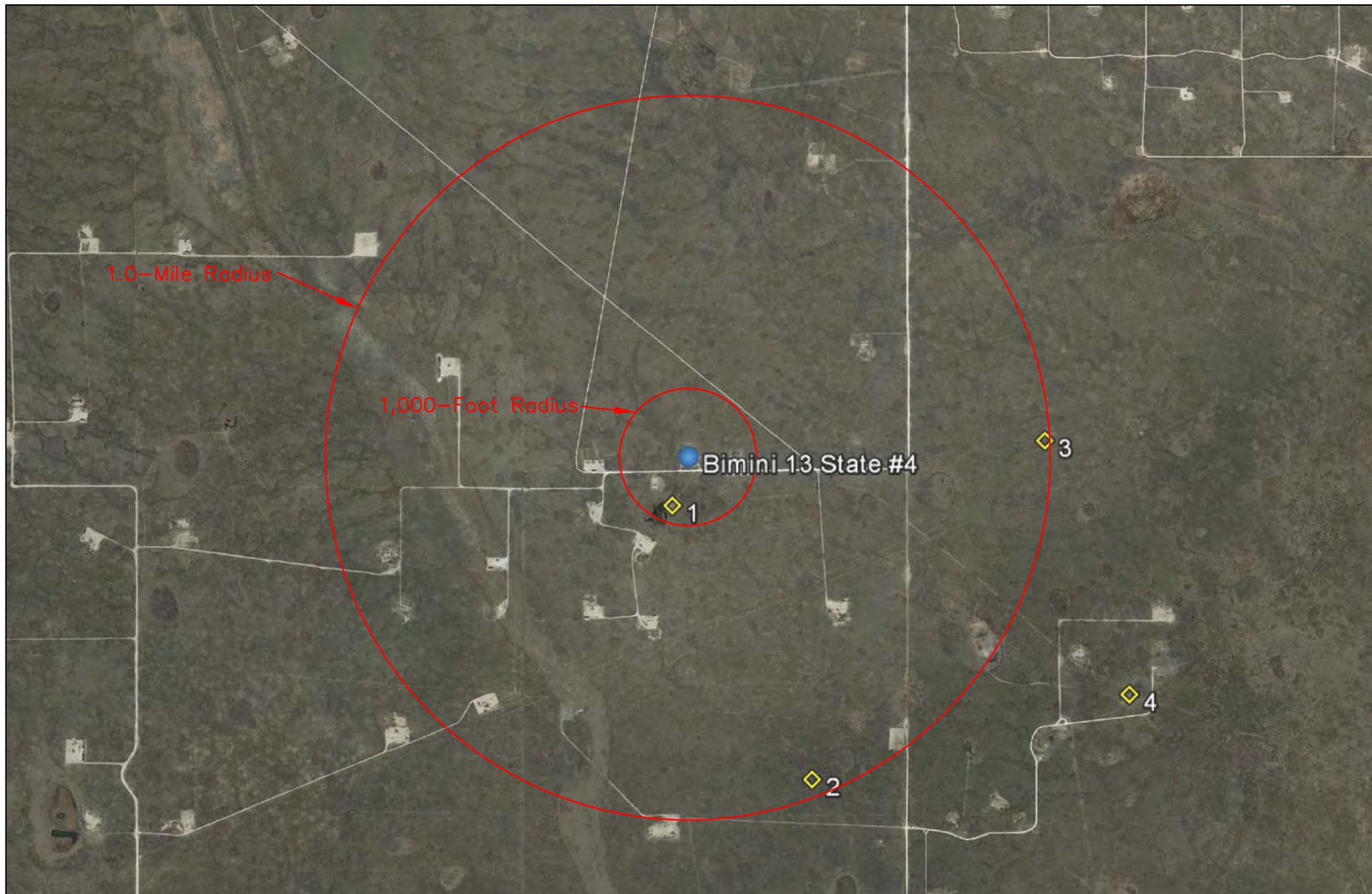
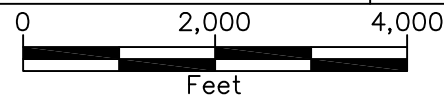


Figure 2  
Site Location Map  
Vanguard  
Bimini 13 State #4

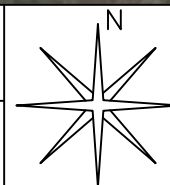
Lea County, New Mexico  
SE 1/4 of NW 1/4, Sec. 13, T17S, R35E  
N 32° 50' 09.61" W 103° 24' 43.90"  
Elevation: 3,926 feet amsl

DWG By: D Dominguez  
August 2017

REVISED:



SHEET  
1 of 1



## **TABLES**

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

Ref #	Well Number	Use	Diversion <sup>A</sup>	Owner	q64	q16	q4	Sec	Twsp	Rng	Easting	Northing	Distance <sup>B</sup>	Date Measured	Surface Elevation <sup>C</sup>	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

<sup>A</sup> = In acre feet per annum

<sup>B</sup> = In meters

<sup>C</sup> = 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	--	--	--	--	--	--	--	--	--	--
	4	Excavated	25-Sep-17	0.0	80	<0.050	<0.050	<0.050	<0.150	<0.300	<10.0	<10.0	--	<20.0	20.2
	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



Photograph #9 SP2 prior to excavation



Photograph #10 SP2 excavated



Photograph #11 Topsoil base



Photograph #12 Liner installed



Photograph #13 Topsoil base on top of liner



Photograph#14 Excavation backfilled

**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
<a href="#">L 04503</a>	L		LE			2	24	17S	35E	649145	3632884*	1443	90	43	47
<a href="#">L 04171</a>	L		LE			4	1	18	17S	36E	650102	3634311*	1496	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

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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](http://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,

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

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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P.O. Box 1558  
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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, SM4500CI-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

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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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)**

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) 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	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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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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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 3 @ (18') (H701734-06)**

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) 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

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 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

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 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, SM4500Cl-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

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 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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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 7@ (8") (H701734-10)**

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	07/06/2017	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 BTX	<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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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 8 @ (8") (H701734-11)**

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	07/06/2017	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 BTX	<0.300	0.300	07/06/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID) 100 % 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	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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Celey D. Keene, Lab Director/Quality Manager

### 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		DATE	TIME	BTEX 8021B	TPH 8015M	CHLORIDES (Cl <sup>-</sup> )	SULFATES (SO <sub>4</sub> <sup>2-</sup> )	pH	TCLP	OTHER >>>	PAH
				GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	ACID/BASE		ICE/COOL	OTHER										
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						

Sampler Relinquished:

Date 7-3-17

Received By:

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

Relinquished By:

Date 7-3-17

Received By: (lab staff)

NOTES:

Delivered by:

Sample Cool & Intact

Checked By:

## Chain of Custody Form

**LAB**  
*Cardinal*

ANALYSIS REQUEST

**Eunice, NM 88231**

[illegible]

E-mail results to: [ddominguezepi@gmail.com](mailto:ddominguezepi@gmail.com) & [cjohnston@vnrllc.com](mailto:cjohnston@vnrllc.com)  
& [bhoone.epi@gmail.com](mailto:bhoone.epi@gmail.com)

**& bboone.epi@gmail.com**



Checked by:

October 11, 2017

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: BIMINI 13 STATE #4

Enclosed are the results of analyses for samples received by the laboratory on 09/25/17 15:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-9. 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/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/lab_accred_certif.html).

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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,



Celey D. Keene

Lab Director/Quality Manager

**Analytical Results For:**

Environmental Plus, Inc.  
P.O. Box 1558  
Eunice NM, 88231

Project: BIMINI 13 STATE #4  
Project Number: VANGUARD  
Project Manager: Daniel Dominguez  
Fax To: (505) 394-2601

Reported:  
11-Oct-17 15:56

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SP 2 @ (4')	H702606-01	Soil	22-Sep-17 15:45	25-Sep-17 15:25

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Environmental Plus, Inc.  
P.O. Box 1558  
Eunice NM, 88231

Project: BIMINI 13 STATE #4  
Project Number: VANGUARD  
Project Manager: Daniel Dominguez  
Fax To: (505) 394-2601

Reported:  
11-Oct-17 15:56

### SP 2 @ (4') H702606-01 (Soil)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
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### Cardinal Laboratories

#### Volatile Organic Compounds by EPA Method 8021

Benzene*	<0.050		0.050	mg/kg	50	7092803	MS	28-Sep-17	8021B	
Toluene*	<0.050		0.050	mg/kg	50	7092803	MS	28-Sep-17	8021B	
Ethylbenzene*	<0.050		0.050	mg/kg	50	7092803	MS	28-Sep-17	8021B	
Total Xylenes*	<0.150		0.150	mg/kg	50	7092803	MS	28-Sep-17	8021B	
Total BTEX	<0.300		0.300	mg/kg	50	7092803	MS	28-Sep-17	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			103 %	72-148		7092803	MS	28-Sep-17	8021B	

#### Petroleum Hydrocarbons by GC FID

GRO C6-C10	<10.0		10.0	mg/kg	1	7092701	MS	27-Sep-17	8015B	
DRO >C10-C28	<10.0		10.0	mg/kg	1	7092701	MS	27-Sep-17	8015B	
EXT DRO >C28-C36	<10.0		10.0	mg/kg	1	7092701	MS	27-Sep-17	8015B	
Surrogate: 1-Chlorooctane			70.5 %	28.3-164		7092701	MS	27-Sep-17	8015B	
Surrogate: 1-Chlorooctadecane			71.2 %	34.7-157		7092701	MS	27-Sep-17	8015B	

### Green Analytical Laboratories

#### Soluble (DI Water Extraction)

Chloride	20.2		10.0	mg/kg wet	10	B710045	JDA	06-Oct-17	EPA300.0	
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Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Environmental Plus, Inc.  
P.O. Box 1558  
Eunice NM, 88231

Project: BIMINI 13 STATE #4  
Project Number: VANGUARD  
Project Manager: Daniel Dominguez  
Fax To: (505) 394-2601

Reported:  
11-Oct-17 15:56

### Volatile Organic Compounds by EPA Method 8021 - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

#### Batch 7092803 - Volatiles

##### Blank (7092803-BLK1)

Prepared & Analyzed: 28-Sep-17

Benzene	ND	0.050	mg/kg							
Toluene	ND	0.050	mg/kg							
Ethylbenzene	ND	0.050	mg/kg							
Total Xylenes	ND	0.150	mg/kg							
Total BTEX	ND	0.300	mg/kg							
Surrogate: 4-Bromofluorobenzene (PID)	0.0517		mg/kg	0.0500		103	72-148			

##### LCS (7092803-BS1)

Prepared & Analyzed: 28-Sep-17

Benzene	1.78	0.050	mg/kg	2.00		88.9	79.5-124			
Toluene	1.61	0.050	mg/kg	2.00		80.7	75.5-127			
Ethylbenzene	1.63	0.050	mg/kg	2.00		81.3	77.7-125			
Total Xylenes	4.94	0.150	mg/kg	6.00		82.3	70.9-124			
Surrogate: 4-Bromofluorobenzene (PID)	0.0505		mg/kg	0.0500		101	72-148			

##### LCS Dup (7092803-BSD1)

Prepared & Analyzed: 28-Sep-17

Benzene	1.75	0.050	mg/kg	2.00		87.4	79.5-124	1.68	6.5	
Toluene	1.58	0.050	mg/kg	2.00		79.0	75.5-127	2.06	7.02	
Ethylbenzene	1.62	0.050	mg/kg	2.00		80.8	77.7-125	0.562	7.83	
Total Xylenes	4.92	0.150	mg/kg	6.00		82.0	70.9-124	0.354	7.78	
Surrogate: 4-Bromofluorobenzene (PID)	0.0512		mg/kg	0.0500		102	72-148			

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

### Analytical Results For:

Environmental Plus, Inc.  
P.O. Box 1558  
Eunice NM, 88231

Project: BIMINI 13 STATE #4  
Project Number: VANGUARD  
Project Manager: Daniel Dominguez  
Fax To: (505) 394-2601

Reported:  
11-Oct-17 15:56

### Petroleum Hydrocarbons by GC FID - Quality Control

#### Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 7092701 - General Prep - Organics

##### Blank (7092701-BLK1)

Prepared &amp; Analyzed: 27-Sep-17

GRO C6-C10	ND	10.0	mg/kg							
DRO >C10-C28	ND	10.0	mg/kg							
EXT DRO >C28-C35	ND	10.0	mg/kg							
EXT DRO >C28-C36	ND	10.0	mg/kg							
Total TPH C6-C28	ND	10.0	mg/kg							
Surrogate: 1-Chlorooctane	42.7		mg/kg	50.0		85.4	28.3-164			
Surrogate: 1-Chlorooctadecane	45.2		mg/kg	50.0		90.4	34.7-157			

##### LCS (7092701-BS1)

Prepared &amp; Analyzed: 27-Sep-17

GRO C6-C10	224	10.0	mg/kg	200		112	76.6-119			
DRO >C10-C28	230	10.0	mg/kg	200		115	81.4-124			
Total TPH C6-C28	454	10.0	mg/kg	400		113	79.4-121			
Surrogate: 1-Chlorooctane	47.8		mg/kg	50.0		95.6	28.3-164			
Surrogate: 1-Chlorooctadecane	46.7		mg/kg	50.0		93.5	34.7-157			

##### LCS Dup (7092701-BSD1)

Prepared &amp; Analyzed: 27-Sep-17

GRO C6-C10	220	10.0	mg/kg	200		110	76.6-119	1.88	7.94	
DRO >C10-C28	229	10.0	mg/kg	200		115	81.4-124	0.344	9.83	
Total TPH C6-C28	449	10.0	mg/kg	400		112	79.4-121	1.10	8.57	
Surrogate: 1-Chlorooctane	46.9		mg/kg	50.0		93.8	28.3-164			
Surrogate: 1-Chlorooctadecane	45.3		mg/kg	50.0		90.6	34.7-157			

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

 Environmental Plus, Inc.  
 P.O. Box 1558  
 Eunice NM, 88231

 Project: BIMINI 13 STATE #4  
 Project Number: VANGUARD  
 Project Manager: Daniel Dominguez  
 Fax To: (505) 394-2601

 Reported:  
 11-Oct-17 15:56

**Soluble (DI Water Extraction) - Quality Control**
**Green Analytical Laboratories**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch B710045 - General Prep - Wet Chem</b>										
<b>Blank (B710045-BLK1)</b>										
				Prepared: 05-Oct-17 Analyzed: 06-Oct-17						
Chloride	ND	10.0	mg/kg wet							
<b>LCS (B710045-BS1)</b>										
				Prepared: 05-Oct-17 Analyzed: 06-Oct-17						
Chloride	243	10.0	mg/kg wet	250		97.1	85-115			
<b>LCS Dup (B710045-BSD1)</b>										
				Prepared: 05-Oct-17 Analyzed: 06-Oct-17						
Chloride	245	10.0	mg/kg wet	250		98.0	85-115	0.943	20	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

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

### Chain of Custody Form

**LAB**  
*Cardinal*

[illegible]

**ATTACHMENT IV**  
**Copy of Initial NMOCD Form C-141**