

**APPROVED**

***By Olivia Yu at 7:39 am, Mar 01, 2018***

NMOCD approves of the  
proposed confirmatory  
delineation plan for 1RP-4536.

**1RP-4536  
DELINEATION PLAN  
Jal Cooper Unit #239  
Produced Water Spill  
Lea County, New Mexico**

Latitude: N32.190606  
Longitude: W-103.210428

LAI Project No. 17-0175-38

February 9, 2018

Prepared for:  
Legacy Reserves Operating, LP  
303 West Wall Street, Suite 1300  
Midland, Texas 79701

Prepared by:  
Larson & Associates, Inc.  
507 North Marienfeld Street, Suite 205  
Midland, Texas 79701



Mark J. Larson, P.G.  
Certified Professional Geologist #10490



Sarah R. Johnson  
Staff Geologist

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## 1.0 INTRODUCTION

Larson & Associates, Inc., (LAI) has prepared this delineation plan on behalf of Legacy Reserves Operating, LP (Legacy) for submittal to the New Mexico Oil Conservation Division (OCD) District 1 for a produced water spill at the Jal Cooper Unit #239 (Site) located in Unit H (SE/4, NE/4) Section 25, Township 24 South, Range 36 East in Lea County, New Mexico. The geodetic position is North 32° 11' 26.18" and West -103° 12' 37.54". Figure 1 presents a topographic map. Figure 2 presents an aerial map.

### 1.1 Background

The spill occurred on December 15, 2016, due to a leak in an injection line, releasing 130 barrels (bbl) of produced water. Approximately 90 bbl were recovered. The fluids migrated south along the lease road from the failure point, terminating in the pasture. The spill area measures approximately 44,450 square feet. Woolworth Trust reported the spill to the OCD (verbal communication with Mike Whitaker) on the day of the release. The initial C-141 was submitted on December 20, 2016 and assigned remediation permit number 1RP-4536. Appendix A presents the initial C-141.

On December 16, 21, and 27, 2016 and January 9, 2017, Environmental Plus, Inc. (EPI) personnel collected soil samples at four (4) locations along the lease road (SP1 through SP-4) and two (2) locations in the pasture (SP5 and SP6). The samples were collected at depths of 4 feet below ground surface (bgs) at SP1, SP3, SP5 and SP6, 8 feet bgs at SP4 and 10 feet bgs at SP2. The soil samples were delivered to Cardinal Laboratories (Cardinal), in Hobbs, New Mexico under preservation and chain of custody. The soil samples were analyzed for chloride by titration method (SM 4500 CL-B). The following samples reported chloride above the delineation limit of 600 milligrams per kilogram (mg/Kg):

- SP1, 4' (1,150 mg/Kg)
- SP2, 10' (864 mg/Kg)
- SP3, 4' (736 mg/Kg)

On February 27-28, 2017 EPI personnel collected soil samples east and west of each previous sample on the lease road (SP1 through SP-4) and north and south of the samples in the pasture (SP5 and SP6). The samples were collected at the surface and to a depth of 2 feet bgs. The samples were delivered to Cardinal under preservation and chain of custody and analyzed for chloride by titration method (SM 4500 CL-B). All samples reported below the delineation standard (600 mg/Kg).

On an unknown date, under EPI supervision, the lease road was excavated to a depth of one foot bgs. The area in the vicinity of SP5 and SP6 was excavated to a depth of approximately 3 feet bgs. The excavation measured approximately 135 x 365 or about 22,300 square feet. Appendix B presents the EPI data.

### 1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,280 feet above mean sea level (msl);
- The surface topography slopes gently towards the southeast;
- There are no surface water features within 1,000 feet of the Site;
- The soil is designated as "Berino-Cacique loamy fine sands association, 0 to 3 percent slope" consisting of 0 to 6 inches of loamy fine sand underlain by 6 to 60 inches of sandy clay loam;

- The geology is of Eolian and Piedmont deposits (Holocene to middle Pleistocene)- interlayered eolian sands and piedmont-slope deposits;
- Groundwater occurs in the Ogallala formation at approximately 100 feet bgs;
- According to the New Mexico Office of the State Engineer (NMOSE), the nearest fresh water well is located in Unit I (NE/4, SE/4), Section 25, Township 24 South, Range 36 East, approximately 0.22 miles southwest of the Site.

### 1.3 Recommended Remediation Action Levels

Recommended Remediation Action Levels (RRAL) were calculated for benzene, BTEX and TPH based on the following criteria established by the OCD in “Guidelines for Remediation of Leaks, Spills and Releases, pp. 6-7, August 13, 1993”:

Criteria	Result	Score
Depth-to-Groundwater	>100 Feet	0
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1,000 Horizontal Feet	0

The following RRAL apply to the release for ranking score: 0

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 5,000 mg/Kg

Depth to groundwater greater than 100 feet bgs required vertical delineation for chloride to 600 milligrams per kilogram (mg/Kg) and maintained 5 feet farther in depth.

## 2.0 DELINEATION PLAN

LAI proposes to collect soil samples from five (5) locations on the lease road. The samples will be collected at 1 foot intervals to approximately 4 feet bgs and 2 foot intervals to approximately 12 feet bgs using direct push technology (DPT) depending on subsurface conditions. Soil samples will be collected at four (4) locations in the bottom of the excavation at SP5 and SP6 as well as each side wall (north, south east and west). Additional samples will be collected in each cardinal direction (north, south, east and west) of the spill area at the same depth intervals for horizontal delineation. The soil samples will be delivered under preservation and chain of custody to Permian Basin Environmental Lab (PBEL) in Midland, Texas. the upper samples (0 to 1 foot) will be analyzed for BTEX (the sum of benzene, toluene, ethylbenzene and xylenes) and TPH (total petroleum hydrocarbons), including gasoline range organics (GRO), diesel range organics (DRO) and oil range organics (ORO) by EPA SW-846 Methods 8021B and 8015M, respectively. Additional samples will be analyzed for BTEX and TPH for vertical delineation should the initial samples report concentrations above the RRAL. All samples will be analyzed for chloride by Method 300 respectively. Pending laboratory results, further delineation will be determined to reach clean up level standards. Figure 2 presents the proposed sample locations. Appendix C presents photographs.

### **3.0 REMEDIATION**

Legacy will include a remediation plan in the delineation report to be submitted to the OCD upon receipt of the laboratory report.

## Figures

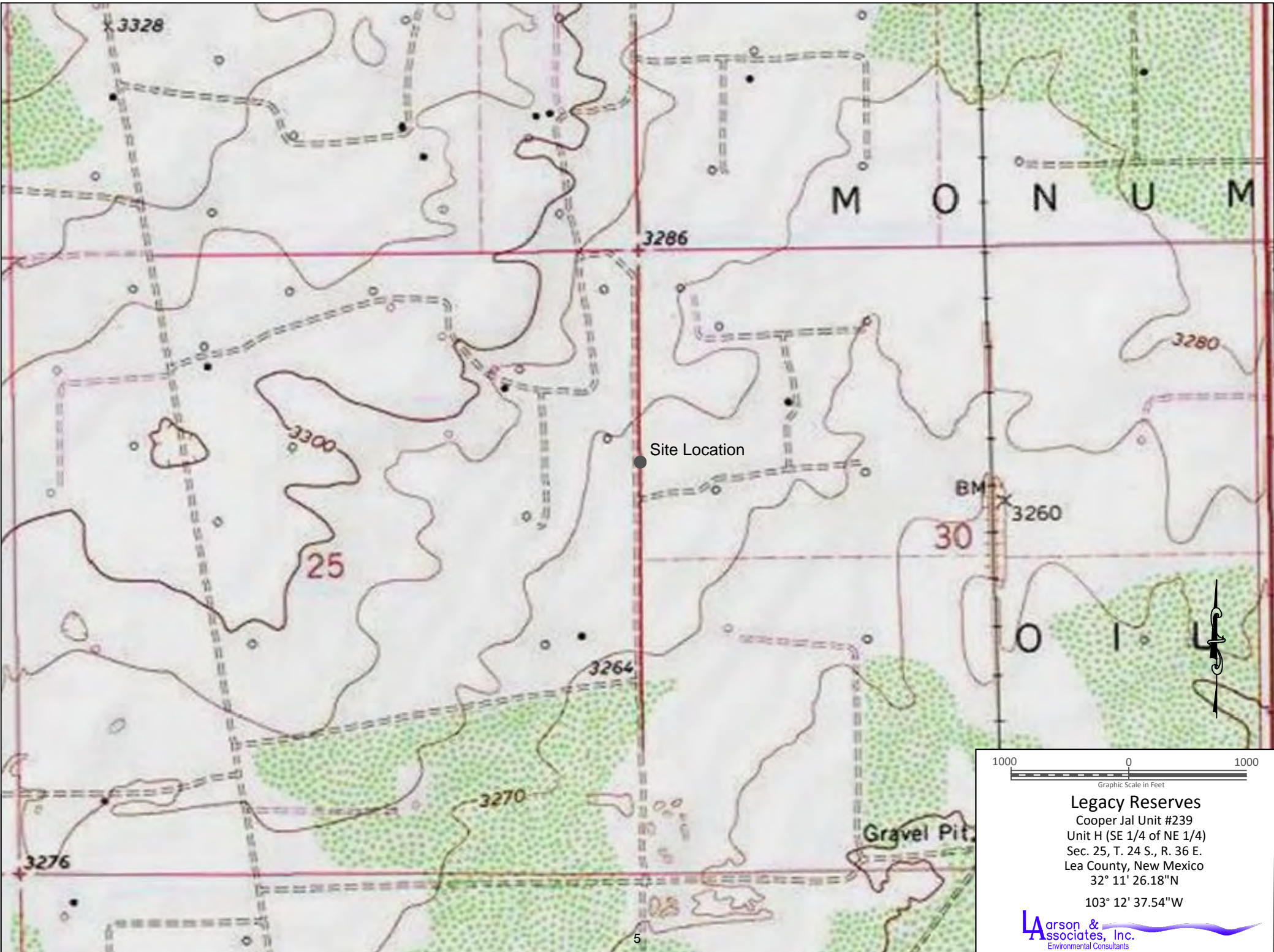


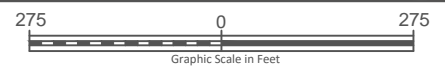
Figure 1 - Topographic Map





Legend

- Spill Area
- Excavation Area
- Proposed Sample Location



**Legacy Reserves**

Cooper Jal Unit #239  
Unit H (SE 1/4 of NE 1/4)  
Sec. 25, T. 24 S., R. 36 E.  
Lea County, New Mexico  
32° 11' 26.18"N  
103° 12' 37.54"W



Figure 2 - Aerial Map

## **Appendix A**

### **Initial C-141**

**NM OIL CONSERVATION**  
ARTESIA DISTRICT

DEC 22 2016

Form C-141  
Revised August 8, 2011

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

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

**PAB1036456918 Release Notification and Corrective Action**

**PAB1036457055 OPERATOR** ☒ Initial Report ☐ Final Report

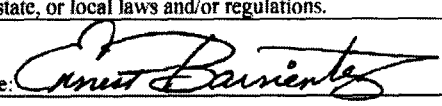

Name of Company: Legacy, L.P. <b>240974</b>	Contact: Ernest Barrientez
Address: P.O. Box 10848 Midland, TX 79702	Telephone No. 432-853-0633
Facility Name: Jal Cooper Unit #239	Facility Type: Injection Line
Surface Owner: Woolworth Trust	Mineral Owner: API No.

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	25	24S	36E					Lea

**Latitude: N 32.190606° Longitude: W 103.210428°**

**NATURE OF RELEASE**

Type of Release: produced water	Volume of Release: 130 barrels	Volume Recovered: 90 barrels
Source of Release: injection line failed	Date and Hour of Occurrence: 12/15/16 @ unknown	Date and Hour of Discovery: 12/15/16 @ unknown
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Whitaker, OCD	
By Whom? Woolworth Trust	Date and Hour: 12/15/16	
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		
Describe Cause of Problem and Remedial Action Taken.* An injection line developed a leak releasing fluid to lease road and pasture. A vacuum truck was dispatched to collect standing fluid.		
Describe Area Affected and Cleanup Action Taken.* A vacuum truck was called to the location and was able to recover 90 barrels of the fluid from lease road and pasture. Surface contamination will be scraped up and samples will be collected from release area.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOC 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 NMOC 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, NMOC 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: Ernest Barrientez	Approved by Environmental Specialist 	
Title: Production Foreman	Approval Date: 12/29/16	Expiration Date: N/A
E-mail Address: ebarrientez@legacylp.com	Conditions of Approval: see attached	Attached <input checked="" type="checkbox"/>
Date: 12-20-2016 Phone: 432-853-0633		

\* Attach Additional Sheets If Necessary

1 RP-4536

Operator/Responsible Party,

The OCD has received the form C-141 you provided on **12/22/16** regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number IRP-4536 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

*The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]*

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District II office in Artesia on or before 2/1/17. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

**Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.**

**Jim Griswold**

OCD Environmental Bureau Chief

1220 South St. Francis Drive

Santa Fe, New Mexico 87505

505-476-3465

[jim.griswold@state.nm.us](mailto:jim.griswold@state.nm.us)

## **Weaver, Crystal, EMNRD**

---

**From:** Lynch, Kristen, EMNRD  
**Sent:** Wednesday, December 21, 2016 4:10 PM  
**To:** Patterson, Heather, EMNRD; Weaver, Crystal, EMNRD; Bratcher, Mike, EMNRD  
**Subject:** Fw: C - 141 - TARGA MIDSTREAM  
**Attachments:** Untitled.PDF

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**From:** Casillas, Bertha, EMNRD  
**Sent:** Wednesday, December 21, 2016 10:36 AM  
**To:** Lynch, Kristen, EMNRD  
**Subject:** C - 141 - TARGA MIDSTREAM

BERTHA CASILLAS  
EMNRD – OCD DISTRICT I  
1625 N. FRENCH DRIVE  
HOBBS, NM 88240  
OFFICE: (575) 393-6161  
FAX: (575) 393-0720  
[BERTHA.CASILLAS@STATE.NM.US](mailto:BERTHA.CASILLAS@STATE.NM.US)

**Appendix B**  
**EPI Work Plan**

# ***ENVIRONMENTAL PLUS, INC.***

2100 AVE 'O'  
P.O. BOX 1558  
EUNICE, NM 88231  
ddominguezepi@gmail.com  
Office: (575) 394-3481  
Fax: (575) 394-2601



## **Site Characterization and Work Plan**

**Legacy, L.P.  
Jal Cooper #239  
Lea County, New Mexico  
Unit Letter "H", Section 25, Township 24 South, Range 36 East  
Latitude 32.190606 North, Longitude 103.210428 West  
NMOCD Reference #1RP-4536**

Prepared For:

Legacy, L.P.  
P.O. Box 10848  
Midland, Texas 79702

Prepared By:

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

**February 2017**

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

Daniel Dominguez  
Project Manager

**APPROVED**

***By Olivia Yu at 9:04 am, May 04, 2017***

NMOCD approves the delineation  
workplan for 1RP-4536.

-Bottom confirmation samples are  
requested for SP5 and SP6 at 3  
ft. bgs.





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 H (SE ¼ NE ¼), Section 25, Township 24 South, Range 36 East, approximately five miles north-west of Jal, in Lea County, New Mexico. The property is owned by the Woolworth Trust.

The release site is located on an active lease road; latitude 32.190606 North, longitude 103.210428 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 indicated that on December 15, 2016 approximately 130 barrels of produced water was released when an injection line developed a leak releasing the fluid to lease road and pasture. A vacuum truck was dispatched to the site and recovered approximately 90 barrels, resulting in a net loss of 40 barrels of produced water. The visually stained area covers approximately 37,500 square feet of lease road and 56,500 square feet of pasture area totaling 94,000 square feet. The Initial NMOCD Form C-141 is included as Attachment IV.

**NMOCD Site Classification:**

A search for water wells was completed utilizing the New Mexico Office of the State Engineer's (NMOSE) website. There are two wells located in the area surrounding the release site (reference *Table I*). Also, no wells (domestic, agriculture or public) and no bodies of surface water exist within a 1,000-foot radius of the release site (reference *Figure 2*). The NMOSE database indicates average water depth is approximately 135 feet below ground surface (bgs) within a 2,000-meter radius of the release site (reference *Attachment II*).

Utilizing this information, the NMOCD guidelines indicate the Jal Cooper #239 release site to have a ranking score of zero. Based on this score, the NMOCD Recommended Remedial Action Levels (RRALs) for this Site were determined as follows: Benzene – 10 mg/Kg, BTEX – 50 mg/Kg, TPH – 5,000 mg/Kg, and Chloride – 1,000 mg/Kg.

The produced water traveled down the lease road approximately 2,000'. This area is sandy topsoil over compacted caliche. Approximately 1,800' down the road, the produced water entered the pasture covering an area approximately 230' x 320'. This area is sandy topsoil over caliche.

**Delineation Progress:**

On December 16, 21, and 27, 2016 and January 9, 2017 EPI personnel mobilized on site to collect soil samples to determine the vertical extent of contamination. A total of thirty-three soil samples were collected from six sample locations; SP1 – SP6. Six representative samples, one from TD at each sample location, were sent to Cardinal Labs in Hobbs, New Mexico, for chloride testing. Laboratory analytical results indicate that, apart from SP1 at four feet bgs, the release area is void of Chloride concentrations more than NMOCD RRALs of 1,000 mg/Kg (reference *Figure 3* and *Table 2*).

On February 27-28, 2017 EPI personnel mobilized on site to collect soil samples to determine the vertical and horizontal extent of contamination. A total of thirteen vertical soil samples were collected from six sample locations; SP1 – SP6. Six representative samples, one from TD at each sample location, were sent to Cardinal Labs in Hobbs, New Mexico, for chloride testing. Laboratory analytical results indicate that Chloride concentrations more than NMOCD RRALs of 1,000 mg/Kg are not present at eighteen to twenty-two feet bgs.

A total of twenty-two horizontal soil samples were collected from six sample locations surrounding the release area; SP1 E – SP6 S. All twenty-two soil samples were sent to Cardinal Labs in Hobbs, New Mexico, for chloride testing. Laboratory analytical results indicate that the area adjacent to the release area, horizontally, is void of Chloride concentrations more than NMOCD RRALs of 1,000 mg/Kg (reference *Figure 3* and *Table 2*).

### **Proposed Actions:**

Taking into consideration the release occurred on an active lease road, and field chloride testing indicating chloride levels above NMOCD RRALs between three and six feet bgs (reference *Table 2*), EPI proposes to excavate the lease road area to one foot bgs and then backfill with one foot of caliche to impede the further vertical migration of chloride impacts.

Field chloride testing in the area off the road in the pasture indicate chloride levels above NMOCD RRALs to two feet bgs (reference *Table 2*). EPI proposes to excavate this area to three feet bgs to ensure removal of chloride impacts. The pasture excavation will first be backfilled with two feet of caliche and then one foot of select top soil to finish grade. Top soil and caliche will be free of deleterious material or rocks or large clumps.

Backfilling will continue until the entire excavation is closed. Upon completion of backfill activities, the entire disturbed area will be contoured to blend with existing lease road and pasture area and protected against wind/water erosion. The disturbed pasture area will be seeded with a mixture approved by the property owner. However, it is recommended completing this activity in late spring 2017 when ground conditions are more conducive to vegetative growth.

Following completion of NMOCD approved Proposed Actions, EPI will provide a detailed *Final Closure Report* to Legacy, L.P. and NMOCD personnel. Legacy, L.P. 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](mailto:ddominguezepi@gmail.com) or Mr. Steven Dittman at (432) 312-4757 or via e-mail at [sdittman@legacylp.com](mailto:sdittman@legacylp.com). All official communication should be addressed to:

Mr. Steven Dittman  
Legacy, L.P.  
P.O. Box 10848  
Midland, TX 79702

---

Sincerely,

ENVIRONMENTAL PLUS, INC.



Daniel Dominguez  
Environmental Consultant

cc: Olivia Yu, Environmental Specialist – NMOCD District 1, Hobbs  
Steven Dittman, Production Tech – Legacy, L.P.  
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**



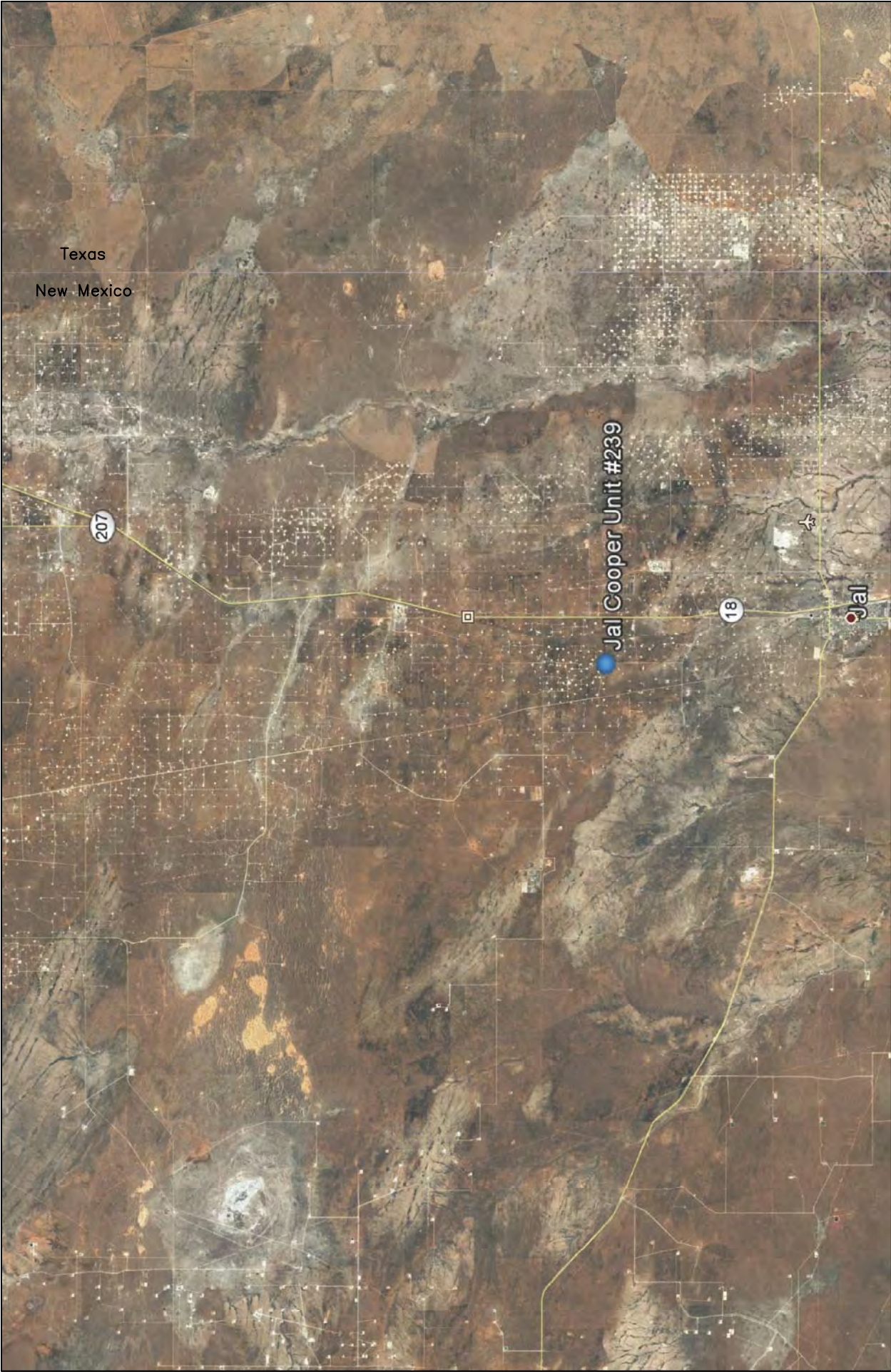


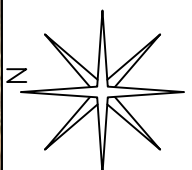


Figure 1 Area Map Legacy, L.P. Jal Cooper Unit #239	Lea County, New Mexico SE 1/4 of NE 1/4, Sec. 25, T24S, R36E N 32° 11' 26.18" W 103° 12' 37.54" Elevation: 3,280 feet amsl	DWG By: D Dominguez December 2016	REVISED:		
			SHEET 1 of 1		
		 0 3 6 Miles			





Figure 2 Site Location Map Legacy, L.P. Jal Cooper Unit #239	Lea County, New Mexico SE 1/4 of NE 1/4, Sec. 25, T24S, R36E N 32° 11' 26.18" W 103° 12' 37.54" Elevation: 3,280 feet amsl		
<p>DWG By: D Dominguez December 2016</p>			
<p>REVISED:</p>			
0	2,000	4,000	SHEET 1 of 1
			
Feet			
			

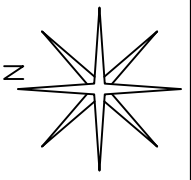


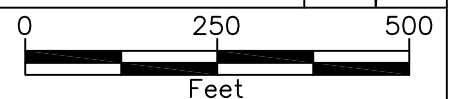
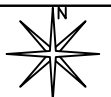




Figure 3  
Sample/Site Map  
Legacy, L.P.  
Jal Cooper Unit #239

Lea County, New Mexico  
SE 1/4 of NE 1/4, Sec. 25, T24S, R36E  
N 32° 11' 26.18" W 103° 12' 37.54"  
Elevation: 3,280 feet amsl

DWG By: D Dominguez  
December 2016



## **TABLES**



**TABLE 1**

**Well Data**

**Legacy, L.P. - Jal Cooper Unit #239**

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	CP 01188	MON	0	CHEVRON ENVIRONMENTAL MGMT	2	1	4	24	24S	36E	668131	3564233	1,151	30-Sep-13	3,327	136
2	CP 01174	MON	0	ENVIRONMENTAL COMPLIANCE	2	4	2	24	24S	36E	668516	3564680	1,722	--	3,306	--

\* = Data obtained from the New Mexico Office of the State Engineer Website ([http://iwaters.ose.state.nm.us:7001/iWATERS/wr\\_RegisServlet](http://iwaters.ose.state.nm.us:7001/iWATERS/wr_RegisServlet))

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

<sup>B</sup> = In meters

<sup>C</sup> = Elevation interpolated from USGS topographical map based on referenced location.

-- = Data not provided

MON = Monitoring Well

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**  
**Legacy, L.P.**  
**Jal Cooper Unit #239**

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)	Total TPH (mg/Kg)	Chloride (mg/Kg)
SP1	Surface	Excavated	16-Dec-16	--	2,800	--	--	--	--	--	--	--	--	--
	1	In Situ	16-Dec-16	--	2,400	--	--	--	--	--	--	--	--	--
	2	In Situ	16-Dec-16	--	1,600	--	--	--	--	--	--	--	--	--
	3	In Situ	16-Dec-16	--	3,040	--	--	--	--	--	--	--	--	--
	4	In Situ	09-Jan-17	--	720	--	--	--	--	--	--	--	--	1,150
	14	In Situ	27-Feb-17	--	160	--	--	--	--	--	--	--	--	--
	18	In Situ	27-Feb-17	--	160	--	--	--	--	--	--	--	--	128
SP2	Surface	Excavated	16-Dec-16	--	4,000	--	--	--	--	--	--	--	--	--
	1	In Situ	16-Dec-16	--	1,200	--	--	--	--	--	--	--	--	--
	2	In Situ	16-Dec-16	--	1,400	--	--	--	--	--	--	--	--	--
	3	In Situ	16-Dec-16	--	2,320	--	--	--	--	--	--	--	--	--
	4	In Situ	09-Jan-17	--	1,600	--	--	--	--	--	--	--	--	--
	6	In Situ	09-Jan-17	--	1,880	--	--	--	--	--	--	--	--	--
	10	In Situ	09-Jan-17	--	960	--	--	--	--	--	--	--	--	864
	14	In Situ	27-Feb-17	--	160	--	--	--	--	--	--	--	--	--
	18	In Situ	27-Feb-17	--	160	--	--	--	--	--	--	--	--	192

**TABLE 2**  
**Summary of Soil Sample Field Testing and Laboratory Analytical Results**  
**Legacy, L.P.**  
**Jal Cooper Unit #239**

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)	Total TPH (mg/Kg)	Chloride (mg/Kg)
SP3	Surface	In Situ	16-Dec-16	--	2,560	--	--	--	--	--	--	--	--	--
	1	In Situ	16-Dec-16	--	2,000	--	--	--	--	--	--	--	--	--
	2	In Situ	16-Dec-16	--	1,840	--	--	--	--	--	--	--	--	--
	3	In Situ	16-Dec-16	--	1,920	--	--	--	--	--	--	--	--	--
	4	In Situ	09-Jan-17	--	880	--	--	--	--	--	--	--	--	736
	14	In Situ	27-Feb-17	--	160	--	--	--	--	--	--	--	--	--
	18	In Situ	27-Feb-17	--	160	--	--	--	--	--	--	--	--	176
SP4	Surface	In Situ	16-Dec-16	--	2,400	--	--	--	--	--	--	--	--	--
	1	In Situ	21-Dec-16	--	1,280	--	--	--	--	--	--	--	--	--
	2	In Situ	21-Dec-16	--	1,200	--	--	--	--	--	--	--	--	--
	3	In Situ	21-Dec-16	--	1,440	--	--	--	--	--	--	--	--	--
	4	In Situ	21-Dec-16	--	1,200	--	--	--	--	--	--	--	--	--
	5	In Situ	21-Dec-16	--	1,880	--	--	--	--	--	--	--	--	--
	6	In Situ	21-Dec-16	--	1,600	--	--	--	--	--	--	--	--	--
	8	In Situ	09-Jan-17	--	240	--	--	--	--	--	--	--	--	160
	14	In Situ	27-Feb-17	--	240	--	--	--	--	--	--	--	--	--
	18	In Situ	27-Feb-17	--	240	--	--	--	--	--	--	--	--	208

**TABLE 2**  
**Summary of Soil Sample Field Testing and Laboratory Analytical Results**  
**Legacy, L.P.**

**Jal Cooper Unit #239**

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)	Total TPH (mg/Kg)	Chloride (mg/Kg)
SP5	1	In Situ	27-Dec-16	--	2,400	--	--	--	--	--	--	--	--	--
	2	In Situ	27-Dec-16	--	1,600	--	--	--	--	--	--	--	--	--
	3	In Situ	27-Dec-16	--	480	--	--	--	--	--	--	--	--	--
	4	In Situ	27-Dec-16	--	400	--	--	--	--	--	--	--	--	576
	14	In Situ	27-Feb-17	--	240	--	--	--	--	--	--	--	--	--
	18	In Situ	27-Feb-17	--	240	--	--	--	--	--	--	--	--	224
SP6	1	In Situ	27-Dec-16	--	1,200	--	--	--	--	--	--	--	--	--
	2	In Situ	27-Dec-16	--	1,200	--	--	--	--	--	--	--	--	--
	3	In Situ	27-Dec-16	--	80	--	--	--	--	--	--	--	--	--
	4	In Situ	27-Dec-16	--	80	--	--	--	--	--	--	--	--	32
	14	In Situ	27-Feb-17	--	400	--	--	--	--	--	--	--	--	--
	18	In Situ	27-Feb-17	--	240	--	--	--	--	--	--	--	--	--
SP1 E	22	In Situ	27-Feb-17	--	240	--	--	--	--	--	--	--	--	208
	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	32

**TABLE 2**  
**Summary of Soil Sample Field Testing and Laboratory Analytical Results**  
**Legacy, L.P.**

**Jal Cooper Unit #239**

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)	Total TPH (mg/Kg)	Chloride (mg/Kg)
SP1 W	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	32
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
SP2 E	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	32
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
SP2 W	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	32
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	<16.0
SP3 E	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
SP3 W	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	32
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
SP4 W	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	32
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	32
SP5 N	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16

**TABLE 2**  
**Summary of Soil Sample Field Testing and Laboratory Analytical Results**  
**Legacy, L.P.**

**Jal Cooper Unit #239**

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)	Total TPH (mg/Kg)	Chloride (mg/Kg)
SP5 E	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	<16.0
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	32
SP6 E	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
SP6 S	Surface	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
	2	In Situ	28-Feb-17	--	80	--	--	--	--	--	--	--	--	16
NMOCD Recommended Remedial Action Levels				100		10				50			5,000	1,000

-- = Not Analyzed  
**Red** values are in excess of NMOCD Recommended Remedial Action Levels

## **ATTACHMENTS**

**ATTACHMENT I**  
**Photographs**





Photograph #1- Point of release



Photograph #2- Looking across release area.





Photograph #3- Looking across release area.



Photograph #4- Looking across release area.





Photograph #5- Looking across release area.



Photograph #6- Looking across release area.





Photograph #7 – Looking across pasture release area



Photograph #8 – Looking across pasture release area

**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="#">CP 01188 POD2</a>			LE	3	2	4	24	24S	36E	668359	3564067	1151	171	135	36
<a href="#">CP 01188 POD1</a>			LE	2	1	4	24	24S	36E	668131	3564233	1386	176	136	40

Average Depth to Water: **135 feet**

Minimum Depth: **135 feet**

Maximum Depth: **136 feet**

Record Count: 2

### UTMNAD83 Radius Search (in meters):

**Easting (X):** 668696

**Northing (Y):** 3562967

**Radius:** 2000

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**

January 05, 2017

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: JAL COOPER UNIT #239

Enclosed are the results of analyses for samples received by the laboratory on 01/03/17 15:36.

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: 01/03/2017  
 Reported: 01/05/2017  
 Project Name: JAL COOPER UNIT #239  
 Project Number: NONE GIVEN  
 Project Location: UL-H SEC. 25, T24S, R36E

 Sampling Date: 12/27/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 5 (4') (H700007-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	576	16.0	01/04/2017	ND	416	104	400	0.00	

**Sample ID: SP 6 (4') (H700007-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	01/04/2017	ND	432	108	400	3.77	

Cardinal Laboratories

\*=Accredited Analyte

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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

---

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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

Chain of Custody Form  
LAB Cardinal

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

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January 16, 2017

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: JAL COOPER UNIT #239

Enclosed are the results of analyses for samples received by the laboratory on 01/12/17 15:37.

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).

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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: 01/12/2017  
 Reported: 01/16/2017  
 Project Name: JAL COOPER UNIT #239  
 Project Number: NONE GIVEN  
 Project Location: UL-H SEC. 25, T24S, R36E

 Sampling Date: 01/09/2017  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 1 (4') (H700088-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1150	16.0	01/13/2017	ND	432	108	400	0.00	

**Sample ID: SP 2 (10') (H700088-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	864	16.0	01/13/2017	ND	432	108	400	0.00	

**Sample ID: SP 3 (4') (H700088-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	736	16.0	01/13/2017	ND	432	108	400	0.00	

**Sample ID: SP 4 (8') (H700088-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	160	16.0	01/13/2017	ND	432	108	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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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



**LAB**  
**Cardinal**

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

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March 03, 2017

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: JAL COOPER UNIT #239

Enclosed are the results of analyses for samples received by the laboratory on 02/28/17 15:50.

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).

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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: 02/28/2017  
 Reported: 03/03/2017  
 Project Name: JAL COOPER UNIT #239  
 Project Number: NONE GIVEN  
 Project Location: UL-H SEC. 25, T24S, R36E

 Sampling Date: 02/27/2017  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 1 (18') (H700508-01)**

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	03/01/2017	ND	448	112	400	0.00	

**Sample ID: SP 2 (18') (H700508-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	192	16.0	03/01/2017	ND	448	112	400	0.00		

**Sample ID: SP 3 (18') (H700508-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	03/01/2017	ND	448	112	400	0.00		

**Sample ID: SP 4 (18') (H700508-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	03/01/2017	ND	448	112	400	0.00	

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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: 02/28/2017  
 Reported: 03/03/2017  
 Project Name: JAL COOPER UNIT #239  
 Project Number: NONE GIVEN  
 Project Location: UL-H SEC. 25, T24S, R36E

 Sampling Date: 02/27/2017  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 5 (18') (H700508-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	224	16.0	03/01/2017	ND	448	112	400	0.00		

**Sample ID: SP 6 (22') (H700508-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	208	16.0	03/01/2017	ND	448	112	400	0.00	

Cardinal Laboratories

\*=Accredited Analyte

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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

# 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 Legacy LP

Facility Name Jal Cooper Unit #239

Location UL-H Sec. 25, T24S, R36E

Project Reference

EPI Sampler Name Dustin Crockett

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



Bill To

ANALYSIS REQUEST

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX					PRESERV.	SAMPLING	DATE	TIME	ANALYSIS REQUEST									
				GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:				BTEX 8021B	TPH 8015M	CHLORIDES (Cl <sup>-</sup> )	SULFATES (SO <sub>4</sub> <sup>2-</sup> )	pH	TCLP	OTHER >>>	PAH		
#100508	1 SP1 (18')	G	1	X						X	27-Feb-17	10:15	X									
	2 SP2 (18')	G	1	X						X	27-Feb-17	11:10	X									
	3 SP3 (18')	G	1	X						X	27-Feb-17	12:15	X									
	4 SP4 (18')	G	1	X						X	27-Feb-17	14:00	X									
	5 SP5 (18')	G	1	X						X	27-Feb-17	13:45	X									
	6 SP6 (22')	G	1	X						X	27-Feb-17	13:35	X									
	7																					
	8																					
	9																					
	10																					

Sampler Relinquished:

Date 2/28/17

Received By:

Relinquished by:

Date 2/28/17

Received By: (lab staff)

Delivered by:

Sample Cool & Intact

Checked By:

E-mail results to: ddominguezepi@gmail.com  
NOTES:



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

---

March 03, 2017

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: JAL COOPER UNIT #239

Enclosed are the results of analyses for samples received by the laboratory on 02/28/17 15:50.

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,

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: 02/28/2017  
 Reported: 03/03/2017  
 Project Name: JAL COOPER UNIT #239  
 Project Number: NONE GIVEN  
 Project Location: UL-H SEC. 25, T24S, R36E

 Sampling Date: 02/28/2017  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 1 EAST (SURFACE) (H700509-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 1 EAST (2') (H700509-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 1 WEST (SURFACE) (H700509-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 1 WEST (2') (H700509-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

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: 02/28/2017  
 Reported: 03/03/2017  
 Project Name: JAL COOPER UNIT #239  
 Project Number: NONE GIVEN  
 Project Location: UL-H SEC. 25, T24S, R36E

 Sampling Date: 02/28/2017  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: SP 2 EAST (SURFACE) (H700509-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 2 EAST (2') (H700509-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 2 WEST (SURFACE) (H700509-07)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 2 WEST (2') (H700509-08)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	03/02/2017	ND	448	112	400	0.00		

**Sample ID: SP 3 EAST (SURFACE) (H700509-09)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00		

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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: 02/28/2017  
Reported: 03/03/2017  
Project Name: JAL COOPER UNIT #239  
Project Number: NONE GIVEN  
Project Location: UL-H SEC. 25, T24S, R36E

Sampling Date: 02/28/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 3 EAST (2') (H700509-10)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 3 WEST (SURFACE) (H700509-11)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 3 WEST (2') (H700509-12)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 4 WEST (SURFACE) (H700509-13)**

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 4 WEST (2') (H700509-14)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/02/2017	ND	448	112	400	0.00	

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Celey D. Keene, Lab Director/Quality Manager



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

Received: 02/28/2017  
Reported: 03/03/2017  
Project Name: JAL COOPER UNIT #239  
Project Number: NONE GIVEN  
Project Location: UL-H SEC. 25, T24S, R36E

Sampling Date: 02/28/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 5 NORTH (SURFACE) (H700509-15)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 5 NORTH (2') (H700509-16)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 5 EAST (SURFACE) (H700509-17)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	<16.0	16.0	03/02/2017	ND	448	112	400	0.00		

**Sample ID: SP 5 EAST (2') (H700509-18)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 6 EAST (SURFACE) (H700509-19)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

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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: 02/28/2017  
Reported: 03/03/2017  
Project Name: JAL COOPER UNIT #239  
Project Number: NONE GIVEN  
Project Location: UL-H SEC. 25, T24S, R36E

Sampling Date: 02/28/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: SP 6 EAST (2') (H700509-20)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 6 SOUTH (SURFACE) (H700509-21)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

**Sample ID: SP 6 SOUTH (2') (H700509-22)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	03/02/2017	ND	448	112	400	0.00	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

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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

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(575) 394-3481 FAX: (575) 394-2601

P.O. Box 1558, Eunice, NM 88231

Chain of Custody Form

LAB Cardinal

Bill To

ANALYSIS REQUEST



Attn: Daniel Dominguez

P.O. Box 1558

Eunice, NM 88231

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 Legacy LP

Facility Name Jal Cooper Unit #239

Location UL-H Sec. 25, T24S, R36E

Project Reference

EPI Sampler Name Dustin Crockett

LAB I.D.

SAMPLE I.D.

H700509

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E-mail results to: ddominguezepi@gmail.com

NOTES:

Date 2/28/17

Time 12:00 pm

Date 4/14/17

Time 3:55 pm

Received By: [Signature]

Received By: (lab staff)

Time 4:14/17

Time 3:55 pm

Checked By: [Signature]

Sample Cool & Intact

Yes

No

Delivered by: [Signature]

86

70. #75



## Chain of Custody Form

**LAB** *Cardinal*

ANALYSIS REQUEST

Page 2 of 3

58



# 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

Bill To

ANALYSIS REQUEST



Attn: Daniel Dominguez

P.O. Box 1558

Eunice, NM 88231

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 Legacy LP

Facility Name Jal Cooper Unit #239

Location UL-H Sec. 25, T24S, R36E

Project Reference

EPI Sampler Name Dustin Crockett

MATRIX

PRESERV.

SAMPLING

LAB I.D.

SAMPLE I.D.

#700509

21 SP6 South (Surface)

22 SP6 South (2')

23

24

25

26

27

28

29

30

(G)RAB OR (C)OMP.

# CONTAINERS

GROUND WATER

WASTEWATER

SOIL

CRUDE OIL

SLUDGE

OTHER:

ACID/BASE

ICE/COOL

OTHER

DATE

TIME

BTEX 8021B

TPH 8015M

CHLORIDES (Cl<sup>-</sup>)

SULFATES (SO<sub>4</sub><sup>2-</sup>)

pH

TCLP

OTHER >>>

PAH

Sampler Relinquished:

Relinquished by:

Delivered by:

Date 2/28/17

Time 12:00 pm

Received By:

Received By: (lab staff)

Date 2/28/17

Time 1:15 pm

Sample Cool & Intact

Yes

No

Checked By:

TD. #15

E-mail results to: ddominguezepi@gmail.com

NOTES:

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

**NM OIL CONSERVATION**  
ARTESIA DISTRICT

DEC 22 2016

Form C-141  
Revised August 8, 2011

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

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

**PAB1036456918 Release Notification and Corrective Action**

**PAB1036457055 OPERATOR** ☒ Initial Report ☐ Final Report

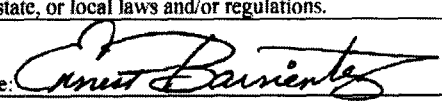

Name of Company: Legacy, L.P. <b>240974</b>	Contact: Ernest Barrientez
Address: P.O. Box 10848 Midland, TX 79702	Telephone No. 432-853-0633
Facility Name: Jal Cooper Unit #239	Facility Type: Injection Line
Surface Owner: Woolworth Trust	Mineral Owner: API No.

**LOCATION OF RELEASE**

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	25	24S	36E					Lea

**Latitude: N 32.190606° Longitude: W 103.210428°**

**NATURE OF RELEASE**

Type of Release: produced water	Volume of Release: 130 barrels	Volume Recovered: 90 barrels
Source of Release: injection line failed	Date and Hour of Occurrence: 12/15/16 @ unknown	Date and Hour of Discovery: 12/15/16 @ unknown
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Mike Whitaker, OCD	
By Whom? Woolworth Trust	Date and Hour: 12/15/16	
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		
Describe Cause of Problem and Remedial Action Taken.* An injection line developed a leak releasing fluid to lease road and pasture. A vacuum truck was dispatched to collect standing fluid.		
Describe Area Affected and Cleanup Action Taken.* A vacuum truck was called to the location and was able to recover 90 barrels of the fluid from lease road and pasture. Surface contamination will be scraped up and samples will be collected from release area.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOC 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 NMOC 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, NMOC 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: Ernest Barrientez	Approved by Environmental Specialist 	
Title: Production Foreman	Approval Date: 12/29/16	Expiration Date: N/A
E-mail Address: ebarrientez@legacylp.com	Conditions of Approval: see attached	Attached <input checked="" type="checkbox"/>
Date: 12-20-2016 Phone: 432-853-0633		

\* Attach Additional Sheets If Necessary

IRP-4536

## **Appendix C**

### **Photographs**



Site Location



Site Prior to Remediation Viewing South, November 8, 2017





Site Prior to Remediation Viewing South, November 8, 2017



Site Prior to Remediation Viewing North, November 8, 2017



Site Prior to Remediation Viewing East, November 8, 2017



Site Prior to Remediation Viewing Northeast, November 8, 2017





Site Prior to Remediation Viewing West, November 8, 2017