APPROVED
By Olivia Yu at 11:27 am, Mar 08, 2018

NMOCD approves of the proposed delineation plan for 1RP-4501. See email correspondence for stipulations.

1RP-4501
DELINEATION PLAN
High Plains 22 State Com #1 Battery
Crude Oil Spill
Lea County, New Mexico

Latitude: N33° 05' 29.81"
Longitude: W-103° 30' 20.28"

LAI Project No. 17-0175-32

February 15, 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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Appendices

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 I for a crude oil spill at the High Plains 22 State Com #1 Battery (Site) located in Unit E (SW/4, NW/4), Section 22, Township 14 South, Range 34 East in Lea County, New Mexico. The geodetic position is North 33° 05' 29.81" and West -103° 30' 20.28". Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The spill occurred on October 19, 2016, due to an oil tank overflow that released approximately 190 barrels (bbl) of crude oil inside the lined containment. Environmental Plus, Inc. (EPI) was retained to investigate and mapped the spill as covering approximately 6,000 square feet inside the lined containment. The C-141 states no liquids were recovered; however, photographs reveal that no liquid migrated outside the containment although several small punctures and a split in the liner were photographed. The spill was reported to the OCD (verbal communication with Kristen Lynch) on October 19, 2016. The initial C-141 was submitted on October 31, 2016 and assigned remediation permit number 1RP-4501. Appendix A presents the initial C-141.

On October 28, 2016 EPI collected soil samples at five (5) locations (SP1 through SP5) outside the containment. The samples were collected at depths of 1 foot below ground surface (bgs) at SP1, SP2, SP3, SP4 and SP5 and at depths of 2 feet bgs, 4 feet bgs and 7 feet bgs at SP5. The samples were delivered to Cardinal Laboratories (Cardinal) in Hobbs, New Mexico and analyzed for BTEX, gasoline range organics (GRO) and diesel range organics (DRO) and chloride by EPA SW-846 Methods 8021B, 8015M and titration SM4500 CL-B, respectively.

BTEX reported above the RRAL (50 mg/Kg) at SP5, 2 feet bgs (675 mg/Kg) and SP5, 4 feet bgs (304 mg/Kg). The combined GRO and DRO concentrations were reported above the RRAL (100 mg/Kg) at SP5, 1 foot bgs (424.6 mg/Kg), SP5, 2 feet bgs (39,400 mg/Kg) and SP5, 4 feet bgs (13,440 mg/Kg). Chloride was reported below the delineation limit (600 mg/Kg) in all samples.

On August 1, 2017, EPI collected soil samples at three (3) locations (SP6 through SP8). The samples were collected at ground surface, 5 feet bgs at SP8, 10 feet bgs at SP6 and 15 feet bgs at SP7. The sample locations are not known. The samples were delivered to Cardinal and analyzed for BTEX, TPH, including GRO, DRO and oil range organics (ORO) and chloride. TPH reported above the RRAL (100 mg/Kg) at SP6, surface (1,621 mg/Kg) and SP7, surface (3,412 mg/Kg). All samples reported below the RRAL for BTEX (50 mg/Kg) and below the delineation limit for chloride (600 mg/Kg). Appendix B presents EPI analytical data and figures.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 4,125 feet above mean sea level (msl);
- The topography slopes gradually towards the southeast;
- The nearest surface water feature is a pond located about 500 feet northwest of the Site;

- The soils are designated as "Kimbrough-Lea complex, dry, 0 to 3 percent slopes", consisting of 0 to 3 inches of gravelly loam underlain by 3 to 10 inches of loam;
- The surface geology is the Ogallala Formation (lower Pliocene to middle Miocene)- Alluvial and eolian deposits, and petrocalcic soils of southern High Plains;
- Groundwater occurs in the Ogallala formation at approximately 58 feet below ground surface (bgs) (1981);
- The nearest freshwater well is a windmill located in Unit H (SE/4, NE/4), Section 21, Township 14 South, Range 34 East, about 750 feet northwest of the Site;

1.3 Recommended Remediation Action Levels

The 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	50 – 99 Feet	10
Wellhead Protection Area	Yes	20
Distance to Surface Water Body	200 - 1,000 Horizontal Feet	10

The following RRAL apply to release ranking score: 40

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 100 mg/Kg

Depth to groundwater between 50 and 99 feet requires vertical delineation for chloride to 600 milligrams per kilogram (mg/Kg) and maintained a minimum 5 feet farther in depth.

2.0 DELINEATION PLAN

LAI proposes to collect soil samples at three (3) locations outside the lined containment to determine if fluids migrated horizontally beneath the liner and tank battery. The samples will be collected at 1 foot intervals to a depth of approximately 4 feet bgs and at 2 foot intervals to a depth of approximately 12 feet bgs using direct push technology (DPT) depending on subsurface conditions. LAI will inspect the liner within the area of the release mapped by EPI and collect samples beneath the liner where splits or openings are observed with visible hydrocarbon staining. Samples will be collected in 1 foot increments to the maximum penetration depth for the hand auger or to the maximum depth of penetration for the DPT rig if access is available. Additional soil samples will be collected in each cardinal direction (north, south, east and west) of the lined containment at the same depth intervals for horizontal delineation. The soil samples will be delivered under chain of custody and preservation to XENCO Laboratories (Xenco) in Midland, Texas, and analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX), total petroleum hydrocarbons (TPH), including GRO, DRO and ORO and chloride by EPA SW-846 Methods 8021B, 8015M and 300 respectively. Pending laboratory results, further delineation may be required to reach cleanup or delineation levels. Figure 2 presents a site map showing proposed soil sample locations. Appendix B presents photographs.

3.0 REMEDIATION PLAN

Legacy will provide a remediation plan in the delineation report to be submitted to the OCD upon receipt of the laboratory report. Legacy will investigate repairing the liner where punctures were.

Figures

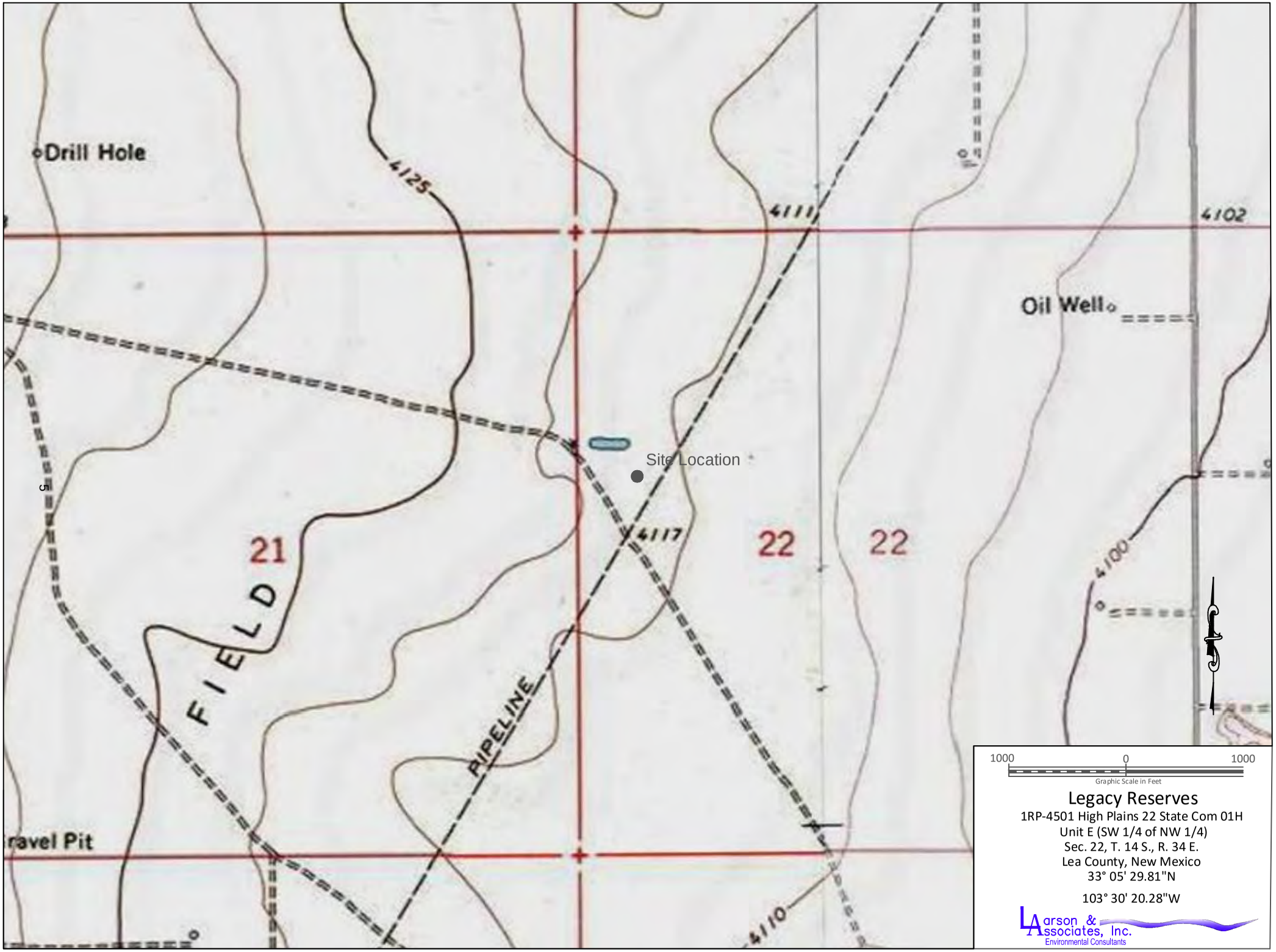

Figure 1 - Topographic Map

Figure 2 - Aerial Map

Appendix A

Initial C-141

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: Legacy, L.P.	Contact: Manuel Soriano
Address: P.O. Box 10848, Midland, Texas 79702	Telephone No. 432-269-8806
Facility Name: High Plains 22 State Com #1 Battery	Facility Type: Battery

Surface Owner: State	Mineral Owner:	API No. 30-025-39540

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
E	22	14S	34E					Lea

Latitude: N 33.091912° **Longitude:** W 103.505966°

NATURE OF RELEASE

Type of Release: oil	Volume of Release: ~190 bbls	Volume Recovered: 0 bbls
Source of Release: oil tank ran over	Date and Hour of Occurrence: 10-19-16 @ am	Date and Hour of Discovery: 10-19-16 @ am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Kristen Lynch	
By Whom? Manuel Soriano	Date and Hour: 10-19-16	
Was a Watercourse Reached? ☐ Yes ☒ 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. *
Release occurred when an oil tank ran over. No fluid was recovered.

Describe Area Affected and Cleanup Action Taken.*
The spill impacted approximately 6,000 sq. ft. of caliche tank battery pad. The entire release of oil was contained within the lined berms. All fluid was lost; the liner has several punctures that will be repaired. The stained soil will be removed and hauled to a state approved disposal facility. Samples will be collected.

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: Manuel Soriano	OIL CONSERVATION DIVISION	
Printed Name: Manuel Soriano	Approved by Environmental Specialist:	
Title: Production Foreman	Approval Date: 11/8/2016	Expiration Date: 1/8/2017
E-mail Address: jsoriano@legacylp.com	Conditions of Approval: See attached Directive	Attached ☐ 1RP 4501
Date: 10/31/2016 Phone: 432-269-8806		

* Attach Additional Sheets If Necessary

NMOCD accepts discrete samples only
Notify OCD prior to sampling

nKL1631347882
pKL1631348136

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 11/7/2016 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 1RP 4501 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 1 office in Hobbs on or before 12/7/2016. 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_6 thru C_{36}), 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_6 thru C_{36}), 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

Appendix B
EPI Analytical Data and Figures

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 E (SW ¼ NW ¼), Section 22, Township 14 South, Range 34 East, approximately fifteen miles north-west of Lovington, in Lea County, New Mexico. The property is owned by the State of New Mexico.

The release site is located on an active tank battery pad; latitude 33.091912 North, longitude 103.505966 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 indicate the release occurred on October 19, 2016 when approximately 190 barrels of oil were released when a tank ran over releasing the fluid to containment. The liner has several punctures, resulting in the loss of all fluid, a net loss of 190 barrels. The release area covers approximately 6,000 square feet of caliche tank battery pad. The Initial NMOCD Forms C-141 are 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 no wells located in the area surrounding the release site (reference *Table 1*). 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 62 feet within a 2,000-meter radius (reference *Attachment II*).

Utilizing this information, the NMOCD guidelines indicate the High Plains 22 State Com #1 Battery release site to have a ranking score of ten. Based on this score, the NMOCD Recommended Remedial Action Levels (RRALs) for vertical delineation at this Site were determined as follows: Benzene – 10 mg/Kg, BTEX – 50 mg/Kg, TPH – 1,000 mg/Kg, and Chloride – 600 mg/Kg. The RRALs for horizontal delineation at this Site were determined as follows: Benzene – 10 mg/Kg, BTEX – 50 mg/Kg, TPH – 1,000 mg/Kg, and Chloride – 600 mg/Kg.

The fluid spread out off the caliche to the north approximately 100' into pasture area consisting of approximately six inches to one foot of topsoil atop hard caliche. The fluid also spread out on the caliche pad to the south approximately 100' (reference *Figure 3*).

Delineation Progress:
From February 3-10, 2017 EPI personnel mobilized on site to collect soil samples to determine the vertical extent of contamination. A total of forty-four soil samples were collected from eight

ENVIRONMENTAL PLUS, INC.

sample locations; SP1 – SP8. Sixteen representative samples, two from each sample location, were sent to Cardinal Labs in Hobbs, New Mexico, for testing. Laboratory analytical results indicate elevated TPH and/or Chlorides at the surface at SP1 – SP8, however, at sample location TD, the release area is void of Benzene, BTEX, TPH, and Chloride concentrations more than NMOCD RRALs. Field testing indicates elevated Chlorides between surface and eight to twelve feet bgs (reference *Figure 3* and *Table 2*).

On February 13, 2017 EPI personnel collected soil samples to determine the horizontal extent of contamination. A total of eight soil samples were collected from four sample locations; North, East, South, and West. All samples, two from each sample location, were sent to Cardinal Labs in Hobbs, New Mexico, for testing. Laboratory analytical results indicate that Benzene, BTEX, TPH, and Chloride concentrations in the area adjacent to the release area, horizontally, are below NMOCD RRALs (reference *Figure 3* and *Table 2*).

On April 3 and 4, 2017 EPI personnel mobilized on site to collect soil samples from the second release area to determine the vertical extent of contamination. A total of nineteen soil samples were collected from three sample locations; SP1 – SP3. Six representative samples, two from each sample location, were sent to Cardinal Labs in Hobbs, New Mexico, for testing. Laboratory analytical results indicate elevated Chlorides at the surface at SP2 and SP3, however, at sample location TD, the release area is void of Benzene, BTEX, TPH, and Chloride concentrations more than NMOCD RRALs. Field testing indicates elevated Chlorides between surface and eighteen to twenty-six feet bgs (reference *Figure 3* and *Table 3*).

On April 5, 2017 EPI personnel collected soil samples from the second release area to determine the horizontal extent of contamination. A total of six soil samples were collected from three sample locations; SP4 – SP6. All samples, two from each sample location, were sent to Cardinal Labs in Hobbs, New Mexico, for testing. Laboratory analytical results indicate that Benzene, BTEX, TPH, and Chloride concentrations in the area adjacent to the release area, horizontally, are below NMOCD RRALs (reference *Figure 3* and *Table 3*).

Proposed Actions:
Taking into consideration the releases occurred at an active tank battery, EPI proposes to excavate the first release area to three feet bgs, with all contaminated soil hauled to a state approved disposal facility. At the conclusion of excavation activities, the pasture area excavation will be backfilled with two feet of caliche, then one foot of select top soil, while the pad area excavation will be backfilled with caliche, to finish grade.

The second release area, being within the bermed containment of the tank battery, will be excavated to two feet bgs, taking extreme care to not comprise the stability of the tanks or process equipment. All contaminated soil will be hauled to a state approved disposal facility. The excavation will first be backfilled with one foot of compacted clay as a liner, to impede the further vertical migration of impacts and protect against any releases that may occur. The remainder of the excavation will be backfilled with caliche, to finish grade. The berms around the tanks will also be removed during excavation activities and replaced with clean caliche.

Top soil, clay, 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 tank battery pad and pasture area and protected against wind/water erosion. The disturbed pasture area will also be seeded and watered.

Revegetation Plan:
In an attempt to achieve native plant cover and diversity levels equal to or exceeding the natural potential levels in undisturbed soils adjacent to the release area, the disturbed pasture area will be seeded with BLM mixture #2 at a rate of 22 lbs per acre. Seed will be applied to the area utilizing a drill seeder in late spring 2017 when ground conditions are more conducive to vegetative growth. After drill seeding has been competed the area will be thoroughly watered. After a period of three months the area will be examined for vegetative growth and re-seeded if no growth has occurred.

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. Applied seed mix will contain no primary or secondary noxious weeds and will either be certified or registered seed. 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 Legacy, L.P., NMOCD, and NMSLO 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 or Mr. Manuel Soriano at (432) 269-8806 or via e-mail at jsoriano@legacylp.com. All official communication should be addressed to:

Mr. Manuel Soriano
Legacy, L.P.
P.O. Box 10848
Midalnd, TX 79702

Sincerely,

ENVIRONMENTAL PLUS, INC.

Daniel Dominguez
Environmental Consultant

cc: Olivia Yu, Environmental Specialist – NMOCD District 1, Hobbs
Amber Groves, Remediation Specialist – NMSLO, Hobbs, NM
Manuel Soriano, Production Foreman – 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 Release Area 1
Table 3 – Summary of Soil Sample Field Testing and Laboratory Analytical Results Release Area 2
Attachment I – Photographs
Attachment II – NMOSE Average Depth to Groundwater
Attachment III – Laboratory Analytical Results
Attachment IV – Copy of Initial NMOCD Forms C-141

FIGURES

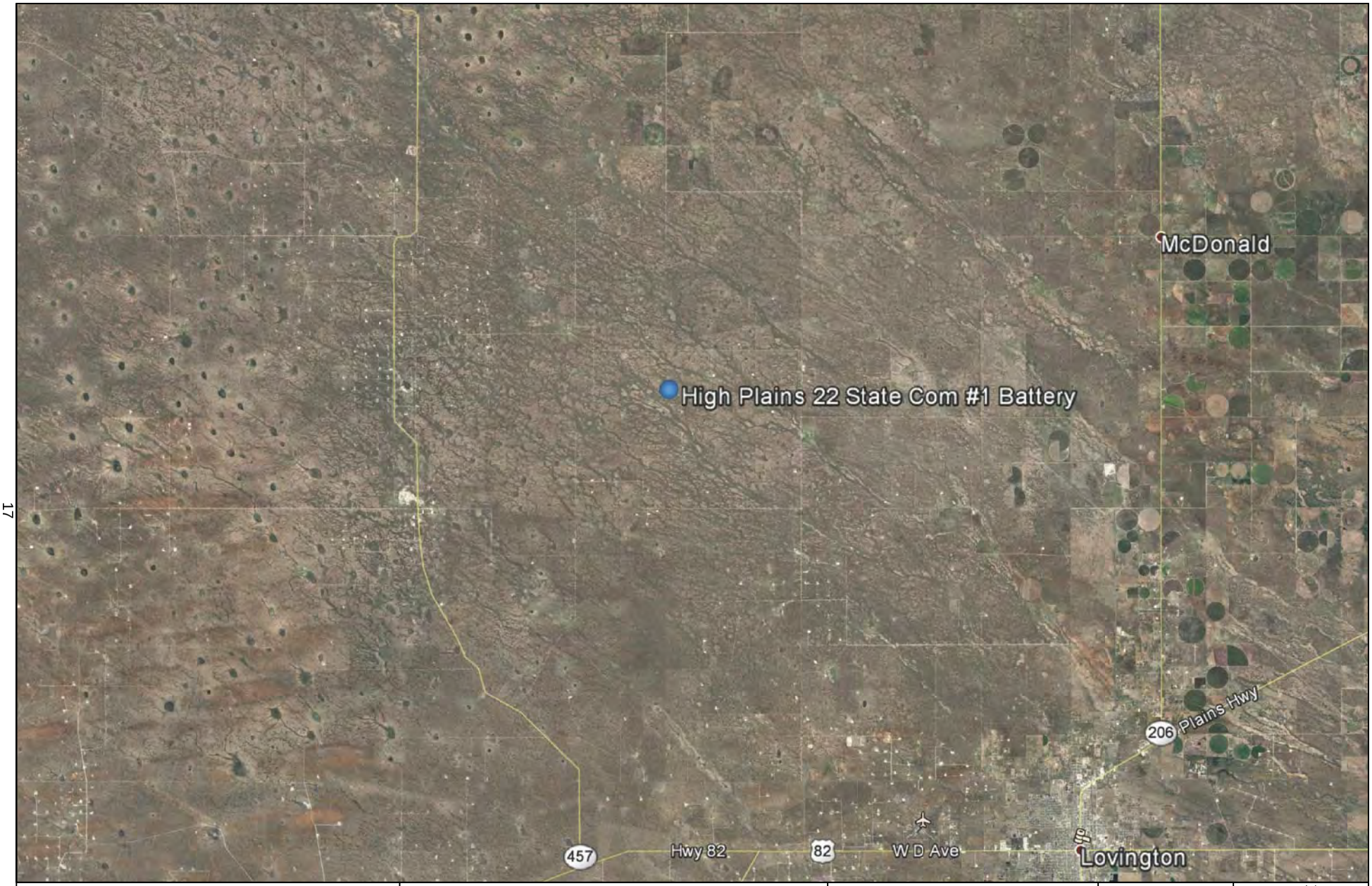

Figure 1 Area Map Legacy, L.P. High Plains 22 State Com #1 Battery	Lea County, New Mexico SW 1/4 of NW 1/4, Sec. 22, T14S, R34E N 33° 05' 30.89" W 103° 30' 21.46" Elevation: 4,133 feet amsl	DWG By: D Dominguez October 2016 0 3 6 Miles	REVISED: SHEET 1 of 1 N

17

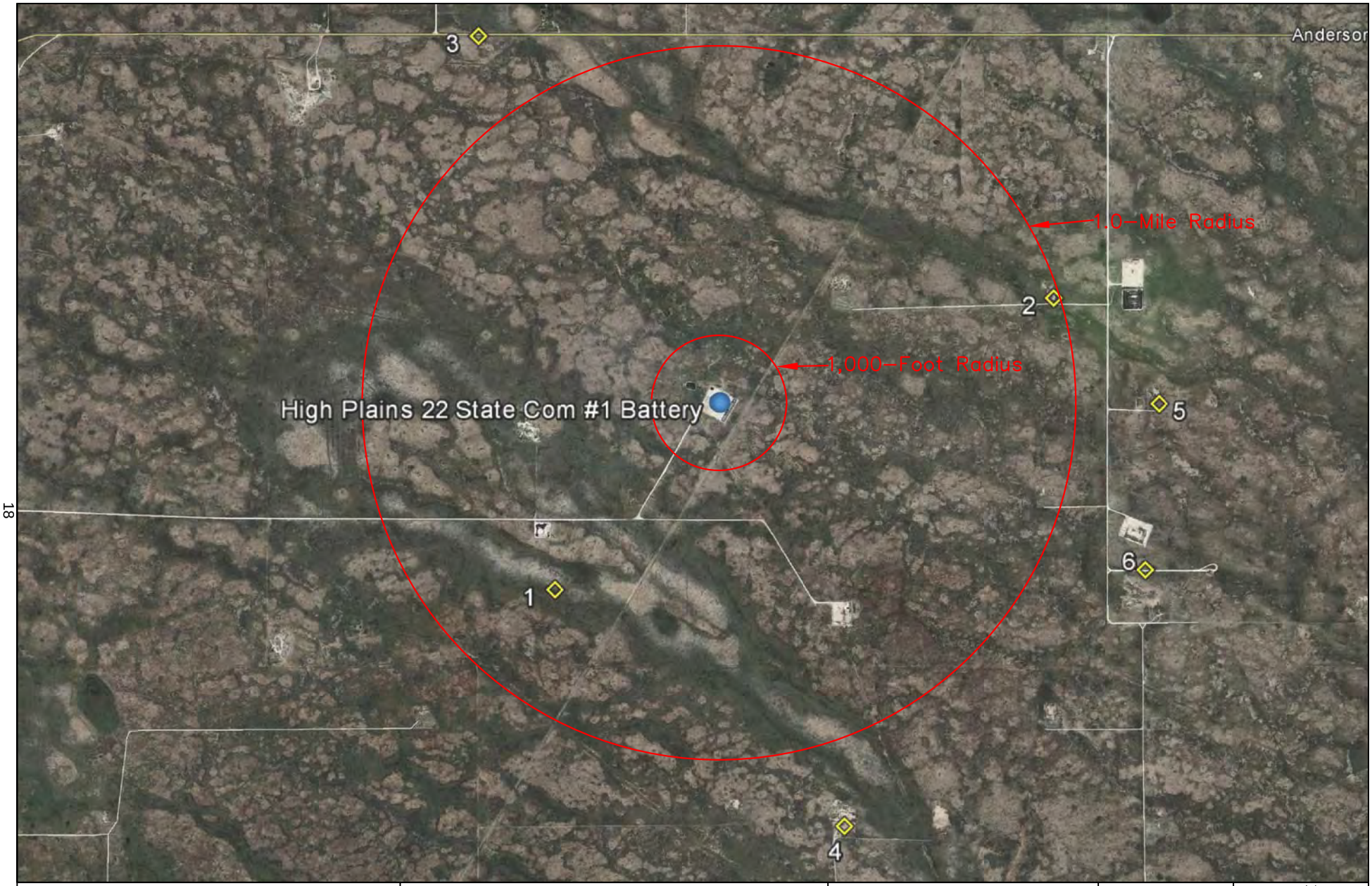

Figure 2 Site Location Map Legacy, L.P. High Plains 22 State Com #1 Battery	Lea County, New Mexico SW 1/4 of NW 1/4, Sec. 22, T14S, R34E N 33° 05' 30.89" W 103° 30' 21.46" Elevation: 4,133 feet amsl	DWG By: D Dominguez October 2016 0 2,000 4,000 Feet	REVISED: SHEET 1 of 1

Figure 3 Sample/Site Map Legacy, L.P. High Plains 22 State Com #1 Battery	Lea County, New Mexico SW 1/4 of NW 1/4, Sec. 22, T14S, R34E N 33° 05' 30.89" W 103° 30' 21.46" Elevation: 4,133 feet amsl	DWG By: D Dominguez October 2016 0 50 100 Feet	REVISED: SHEET 1 of 1 N

TABLES

ATTACHMENTS

CARDINAL Laboratories

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

November 16, 2016

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: HIGH PLAINS 22

Enclosed are the results of analyses for samples received by the laboratory on 11/11/16 14:09.

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

Cardinal Laboratories is accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/11/2016	Sampling Date:	10/28/2016
Reported:	11/16/2016	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 1 (1') (H602544-01)

BTEX 8021B mg/kg Analyzed By: MS I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/14/2016	ND	2.44	122	2.00	1.20	
Toluene*	<0.050	0.050	11/14/2016	ND	2.50	125	2.00	1.18	
Ethylbenzene*	<0.050	0.050	11/14/2016	ND	2.41	121	2.00	1.26	
Total Xylenes*	<0.150	0.150	11/14/2016	ND	7.28	121	6.00	1.22	
Total BTEX	<0.300	0.300	11/14/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *112 %* *73.6-140*

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	11/15/2016	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/14/2016	ND	174	87.1	200	1.22	
DRO >C10-C28	<10.0	10.0	11/14/2016	ND	187	93.7	200	2.72	

Surrogate: 1-Chlorooctane *87.5 %* *35-147*

Surrogate: 1-Chlorooctadecane *96.3 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/11/2016	Sampling Date:	10/28/2016
Reported:	11/16/2016	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 2 (1') (H602544-02)

BTEX 8021B mg/kg **Analyzed By: MS** **I-02**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/14/2016	ND	2.44	122	2.00	1.20	
Toluene*	<0.050	0.050	11/14/2016	ND	2.50	125	2.00	1.18	
Ethylbenzene*	<0.050	0.050	11/14/2016	ND	2.41	121	2.00	1.26	
Total Xylenes*	<0.150	0.150	11/14/2016	ND	7.28	121	6.00	1.22	
Total BTEX	<0.300	0.300	11/14/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *112 %* *73.6-140*

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	11/15/2016	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS** **I-02**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/14/2016	ND	174	87.1	200	1.22	
DRO >C10-C28	<10.0	10.0	11/14/2016	ND	187	93.7	200	2.72	

Surrogate: 1-Chlorooctane *88.0 %* *35-147*

Surrogate: 1-Chlorooctadecane *98.7 %* *28-171*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/11/2016	Sampling Date:	10/28/2016
Reported:	11/16/2016	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 3 (1') (H602544-03)

BTEX 8021B mg/kg Analyzed By: MS I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/14/2016	ND	2.44	122	2.00	1.20	
Toluene*	<0.050	0.050	11/14/2016	ND	2.50	125	2.00	1.18	
Ethylbenzene*	<0.050	0.050	11/14/2016	ND	2.41	121	2.00	1.26	
Total Xylenes*	<0.150	0.150	11/14/2016	ND	7.28	121	6.00	1.22	
Total BTEX	<0.300	0.300	11/14/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *113 %* *73.6-140*

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	11/15/2016	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/14/2016	ND	174	87.1	200	1.22	
DRO >C10-C28	<10.0	10.0	11/14/2016	ND	187	93.7	200	2.72	

Surrogate: 1-Chlorooctane *88.7 %* *35-147*

Surrogate: 1-Chlorooctadecane *84.7 %* *28-171*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/11/2016	Sampling Date:	10/28/2016
Reported:	11/16/2016	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 4 (1') (H602544-04)

BTEX 8021B mg/kg **Analyzed By: MS** **I-02**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/14/2016	ND	2.44	122	2.00	1.20	
Toluene*	**0.077**	0.050	11/14/2016	ND	2.50	125	2.00	1.18	
Ethylbenzene*	**0.062**	0.050	11/14/2016	ND	2.41	121	2.00	1.26	
Total Xylenes*	**0.214**	0.150	11/14/2016	ND	7.28	121	6.00	1.22	
Total BTEX	**0.352**	0.300	11/14/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *112 %* *73.6-140*

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	11/15/2016	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS** **I-02**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/14/2016	ND	174	87.1	200	1.22	
DRO >C10-C28	<10.0	10.0	11/14/2016	ND	187	93.7	200	2.72	

Surrogate: 1-Chlorooctane *79.9 %* *35-147*

Surrogate: 1-Chlorooctadecane *84.1 %* *28-171*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/11/2016	Sampling Date:	10/28/2016
Reported:	11/16/2016	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 5 (1') (H602544-05)

BTEX 8021B mg/kg Analyzed By: MS I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/14/2016	ND	2.44	122	2.00	1.20	
Toluene*	**0.463**	0.050	11/14/2016	ND	2.50	125	2.00	1.18	
Ethylbenzene*	**0.453**	0.050	11/14/2016	ND	2.41	121	2.00	1.26	
Total Xylenes*	**1.50**	0.150	11/14/2016	ND	7.28	121	6.00	1.22	
Total BTEX	**2.41**	0.300	11/14/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *121 %* *73.6-140*

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	11/15/2016	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**40.6**	10.0	11/15/2016	ND	191	95.7	200	3.77	
DRO >C10-C28	**384**	10.0	11/15/2016	ND	199	99.4	200	1.91	QM-07, QR-03

Surrogate: 1-Chlorooctane *108 %* *35-147*

Surrogate: 1-Chlorooctadecane *98.0 %* *28-171*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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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:	11/11/2016	Sampling Date:	10/28/2016
Reported:	11/16/2016	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 5 (2') (H602544-06)

BTEX 8021B mg/kg Analyzed By: MS I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**10.4**	2.00	11/14/2016	ND	2.44	122	2.00	1.20	
Toluene*	**152**	2.00	11/14/2016	ND	2.50	125	2.00	1.18	
Ethylbenzene*	**122**	2.00	11/14/2016	ND	2.41	121	2.00	1.26	
Total Xylenes*	**391**	6.00	11/14/2016	ND	7.28	121	6.00	1.22	
Total BTEX	**675**	12.0	11/14/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *132 %* *73.6-140*

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	11/15/2016	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06, I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**12900**	50.0	11/15/2016	ND	191	95.7	200	3.77	
DRO >C10-C28	**26500**	50.0	11/15/2016	ND	199	99.4	200	1.91	

Surrogate: 1-Chlorooctane *462 %* *35-147*

Surrogate: 1-Chlorooctadecane *609 %* *28-171*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	11/11/2016	Sampling Date:	10/28/2016
Reported:	11/16/2016	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 5 (4') (H602544-07)

BTEX 8021B mg/kg Analyzed By: MS I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	**4.22**	2.00	11/14/2016	ND	2.44	122	2.00	1.20	
Toluene*	**61.3**	2.00	11/14/2016	ND	2.50	125	2.00	1.18	
Ethylbenzene*	**56.6**	2.00	11/14/2016	ND	2.41	121	2.00	1.26	
Total Xylenes*	**182**	6.00	11/14/2016	ND	7.28	121	6.00	1.22	
Total BTEX	**304**	12.0	11/14/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *131 %* *73.6-140*

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	11/15/2016	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-06, I-02

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**3340**	50.0	11/15/2016	ND	191	95.7	200	3.77	
DRO >C10-C28	**10100**	50.0	11/15/2016	ND	199	99.4	200	1.91	

Surrogate: 1-Chlorooctane *196 %* *35-147*

Surrogate: 1-Chlorooctadecane *249 %* *28-171*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

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

Received:	11/11/2016	Sampling Date:	10/28/2016
Reported:	11/16/2016	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 5 (7') (H602544-08)

BTEX 8021B mg/kg **Analyzed By: MS** **I-02**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/14/2016	ND	2.44	122	2.00	1.20	
Toluene*	**0.103**	0.050	11/14/2016	ND	2.50	125	2.00	1.18	
Ethylbenzene*	**0.052**	0.050	11/14/2016	ND	2.41	121	2.00	1.26	
Total Xylenes*	<0.150	0.150	11/14/2016	ND	7.28	121	6.00	1.22	
Total BTEX	<0.300	0.300	11/14/2016	ND					

Surrogate: 4-Bromofluorobenzene (PID *114 %* *73.6-140*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**96.0**	16.0	11/15/2016	ND	432	108	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS** **I-02**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	11/15/2016	ND	191	95.7	200	3.77	
DRO >C10-C28	<10.0	10.0	11/15/2016	ND	199	99.4	200	1.91	

Surrogate: 1-Chlorooctane *102 %* *35-147*

Surrogate: 1-Chlorooctadecane *90.3 %* *28-171*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QR-03	The RPD value for the sample duplicate or MS/MSD was outside if QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
I-02	This result was analyzed outside of the EPA recommended holding time.
BS1	Blank spike recovery above laboratory acceptance criteria. Results for analyte potentially biased high.
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

Celey D. Keene, Lab Director/Quality Manager

Environmental Plus, Inc.

2100 Avenue O, Eunice, NM 88231 P.O. Box 1558, Eunice, NM 88231
(575) 394-3481 FAX: (575) 394-2601

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	High Plains 22
Location	UL-E Sec. 22, T14S, R34E
Project Reference	
EPI Sampler Name	Dustin Crockett

Bill To

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

LAB I.D.	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX 8021B	TPH 8015M	CHLORIDES (Cl)	SULFATES (SO_4)	pH	TCLP	OTHER >>>	PAH			
H6025444																									
1	SP1 (1')	G	1			X					X		28-Oct-16	8:05	X	X	X								
2	SP2 (1')	G	1			X					X		28-Oct-16	8:15	X	X	X								
3	SP3 (1')	G	1			X					X		28-Oct-16	8:35	X	X	X								
4	SP4 (1')	G	1			X					X		28-Oct-16	8:45	X	X	X								
5	SP5 (1')	G	1			X					X		28-Oct-16	10:15	X	X	X								
6	SP5 (2')	G	1			X					X		28-Oct-16	10:35	X	X	X								
7	SP5 (4')	G	1			X					X		28-Oct-16	13:15	X	X	X								
8	SP5 (7')	G	1			X					X		28-Oct-16	14:20	X	X	X								
9																									
10																									

Sampler Relinquished: Dustin Crockett
Date 10/31/16
Time 6:00 am
Received By:

Relinquished by:
Date 11/11/16
Time 2:09 pm
Received By: (lab staff) Jodi Henson

Delivered by: #75 -13.7°C
Sample Cool & Intact: Yes (0) / No
Checked By:

E-mail results to: ddominguezepi@gmail.com & jsoriano@legacylp.com

NOTES:

CARDINAL Laboratories

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

August 11, 2017

Daniel Dominguez

Environmental Plus, Inc.

P.O. Box 1558

Eunice, NM 88231

RE: HIGH PLAINS 22

Enclosed are the results of analyses for samples received by the laboratory on 08/04/17 15:10.

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

Cardinal Laboratories is accreditated 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

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/04/2017	Sampling Date:	08/01/2017
Reported:	08/11/2017	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 6 (SURFACE) (H702051-01)

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	08/08/2017	ND	2.04	102	2.00	2.40	
Toluene*	<0.050	0.050	08/08/2017	ND	1.90	95.1	2.00	2.98	
Ethylbenzene*	**0.053**	0.050	08/08/2017	ND	1.99	99.3	2.00	3.11	
Total Xylenes*	<0.150	0.150	08/08/2017	ND	5.86	97.7	6.00	2.83	
Total BTEX	<0.300	0.300	08/08/2017	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	**624**	16.0	08/09/2017	ND	448	112	400	3.64	

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	08/08/2017	ND	171	85.5	200	1.47	
DRO >C10-C28	**1290**	10.0	08/08/2017	ND	177	88.4	200	3.59	QM-07, QR-03
EXT DRO >C28-C36	**331**	10.0	08/08/2017	ND					

Surrogate: 1-Chlorooctane *74.8 %* *28.3-164*

Surrogate: 1-Chlorooctadecane *99.0 %* *34.7-157*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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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:	08/04/2017	Sampling Date:	08/01/2017
Reported:	08/11/2017	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 6 (10') (H702051-02)

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	08/10/2017	ND	2.03	102	2.00	1.52	
Toluene*	<0.050	0.050	08/10/2017	ND	1.88	94.1	2.00	0.520	
Ethylbenzene*	<0.050	0.050	08/10/2017	ND	1.93	96.7	2.00	0.352	
Total Xylenes*	<0.150	0.150	08/10/2017	ND	5.84	97.4	6.00	0.213	
Total BTEX	<0.300	0.300	08/10/2017	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	08/09/2017	ND	448	112	400	3.64	

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	08/08/2017	ND	171	85.5	200	1.47	
DRO >C10-C28	**18.2**	10.0	08/08/2017	ND	177	88.4	200	3.59	
EXT DRO >C28-C36	**26.1**	10.0	08/08/2017	ND					

Surrogate: 1-Chlorooctane *73.6 %* *28.3-164*

Surrogate: 1-Chlorooctadecane *71.4 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	08/04/2017	Sampling Date:	08/02/2017
Reported:	08/11/2017	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 7 (SURFACE) (H702051-03)

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	08/10/2017	ND	2.03	102	2.00	1.52	
Toluene*	<0.050	0.050	08/10/2017	ND	1.88	94.1	2.00	0.520	
Ethylbenzene*	**0.064**	0.050	08/10/2017	ND	1.93	96.7	2.00	0.352	
Total Xylenes*	**0.194**	0.150	08/10/2017	ND	5.84	97.4	6.00	0.213	
Total BTEX	<0.300	0.300	08/10/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID *107 %* *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	**160**	16.0	08/09/2017	ND	448	112	400	3.64	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	**13.8**	10.0	08/08/2017	ND	171	85.5	200	1.47	
DRO >C10-C28	**2540**	10.0	08/08/2017	ND	177	88.4	200	3.59	
EXT DRO >C28-C36	**859**	10.0	08/08/2017	ND					

Surrogate: 1-Chlorooctane *80.9 %* *28.3-164*

Surrogate: 1-Chlorooctadecane *126 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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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:	08/04/2017	Sampling Date:	08/02/2017
Reported:	08/11/2017	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 7 (15') (H702051-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/10/2017	ND	2.03	102	2.00	1.52	
Toluene*	<0.050	0.050	08/10/2017	ND	1.88	94.1	2.00	0.520	
Ethylbenzene*	<0.050	0.050	08/10/2017	ND	1.93	96.7	2.00	0.352	
Total Xylenes*	<0.150	0.150	08/10/2017	ND	5.84	97.4	6.00	0.213	
Total BTEX	<0.300	0.300	08/10/2017	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	**80.0**	16.0	08/09/2017	ND	432	108	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	08/08/2017	ND	171	85.5	200	1.47	
DRO >C10-C28	**20.4**	10.0	08/08/2017	ND	177	88.4	200	3.59	
EXT DRO >C28-C36	**42.7**	10.0	08/08/2017	ND					

Surrogate: 1-Chlorooctane *83.1 %* *28.3-164*

Surrogate: 1-Chlorooctadecane *76.0 %* *34.7-157*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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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:	08/04/2017	Sampling Date:	08/03/2017
Reported:	08/11/2017	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 8 (SURFACE) (H702051-05)

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	08/10/2017	ND	2.03	102	2.00	1.52	
Toluene*	<0.050	0.050	08/10/2017	ND	1.88	94.1	2.00	0.520	
Ethylbenzene*	<0.050	0.050	08/10/2017	ND	1.93	96.7	2.00	0.352	
Total Xylenes*	<0.150	0.150	08/10/2017	ND	5.84	97.4	6.00	0.213	
Total BTEX	<0.300	0.300	08/10/2017	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	**240**	16.0	08/09/2017	ND	432	108	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	08/08/2017	ND	171	85.5	200	1.47	
DRO >C10-C28	<10.0	10.0	08/08/2017	ND	177	88.4	200	3.59	
EXT DRO >C28-C36	<10.0	10.0	08/08/2017	ND					

Surrogate: 1-Chlorooctane *73.9 %* *28.3-164*

Surrogate: 1-Chlorooctadecane *68.7 %* *34.7-157*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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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:	08/04/2017	Sampling Date:	08/03/2017
Reported:	08/11/2017	Sampling Type:	Soil
Project Name:	HIGH PLAINS 22	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	UL-E SEC. 22, T14S, R34E		

Sample ID: SP 8 (5') (H702051-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/10/2017	ND	2.03	102	2.00	1.52	
Toluene*	<0.050	0.050	08/10/2017	ND	1.88	94.1	2.00	0.520	
Ethylbenzene*	<0.050	0.050	08/10/2017	ND	1.93	96.7	2.00	0.352	
Total Xylenes*	<0.150	0.150	08/10/2017	ND	5.84	97.4	6.00	0.213	
Total BTEX	<0.300	0.300	08/10/2017	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	**32.0**	16.0	08/09/2017	ND	432	108	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	08/08/2017	ND	171	85.5	200	1.47	
DRO >C10-C28	<10.0	10.0	08/08/2017	ND	177	88.4	200	3.59	
EXT DRO >C28-C36	<10.0	10.0	08/08/2017	ND					

Surrogate: 1-Chlorooctane *74.6 %* *28.3-164*

Surrogate: 1-Chlorooctadecane *75.7 %* *34.7-157*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Notes and Definitions

QR-03	The RPD value for the sample duplicate or MS/MSD was outside of QC acceptance limits due to matrix interference. QC batch accepted based on LCS and/or LCSD recovery and/or RPD values.
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

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Environmental Plus, Inc.

2100 Avenue O, Eunice, NM 88231 P.O. Box 1558, Eunice, NM 88231
(575) 394-3481 FAX: (575) 394-2601

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	High Plains 22
Location	UL-E Sec. 22, T14S, R34E
Project Reference	
EPI Sampler Name	Dustin Crockett

Bill To

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

ANALYSIS REQUEST

LAB I.D. H102051	SAMPLE I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUND WATER	WASTEWATER	SOIL	CRUDE OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE	ICE/COOL	OTHER	SAMPLING: DATE	TIME	BTEX 8021B	TPH 8015M (EXT.)	CHLORIDES (Cl⁻)	SULFATES ($SO_4^{=}$)	pH	TCLP	OTHER >>>	PAH			
1	SP6 (Surface)	G	1			X					X		01-Aug-17		X	X	X								
2	SP6 (10')	G	1			X					X		01-Aug-17		X	X	X								
3	SP7 (Surface)	G	1			X					X		02-Aug-17		X	X	X								
4	SP7 (15')	G	1			X					X		02-Aug-17		X	X	X								
5	SP8 (Surface)	G	1			X					X		03-Aug-17		X	X	X								
6	SP8 (5')	G	1			X					X		03-Aug-17		X	X	X								
7																									
8																									
9																									
10																									

Sampler Relinquished: Dustin Crockett
Date 8/4/17
Time 6:00 am
Received By:

Relinquished by:
Date 8/4/17
Time 3:10 pm
Received By: (lab staff)

Delivered by: -10.6°C Corrected -10.35°C
Sample Cool & Intact: Yes / No
Checked By: TO #75

E-mail results to: ddominguezepi@gmail.com & jsoriano@legacylp.com

NOTES:

Appendix C

Photographs

Site Location

Site Prior to Remediation Viewing Northeast, September 14, 2017

Site Prior to Remediation Viewing Southwest, September 14, 2017

Site Prior to Remediation Viewing East, September 14, 2017

Site Prior to Remediation Viewing Northeast, September 14, 2017

Site Prior to Remediation Viewing East, September 14, 2017

Site Prior to Remediation Viewing West, September 14, 2017

Site Prior to Remediation Viewing North, September 14, 2017

Site Prior to Remediation Showing Split in Liner September 14, 2017

EPI Photograph Showing Tear in Liner, October 6, 2017