



Pima Environmental Services, LLC
5614 N. Lovington Hwy.
Hobbs, NM 88240
575-964-7740

October 27th, 2022

NMOCD District 2
811 S. First Street
Artesia, NM 88210

Re: Site Assessment, Remediation, and Closure Report
SV Big Bertha #001
API No. 30-025-33883
GPS: Latitude 32.9383888 Longitude -103.3277969
UL "F.," Sec. 11, T16S, R36E
Lea County, NM
NMOCD Ref. No. NGRL0916335520

Armstrong Energy Corporation have contracted Pima Environmental Services LLC (Pima) to perform a spill assessment, remediation activities, and submit this closure report for a produced water release that occurred at the SV Big Bertha #001. The initial C-141 was submitted on September 15th, 2022 (Appendix C). This incident was assigned Incident ID NGRL0916335520, by the New Mexico Oil Conservation Division (NMOCD).

Site Characterization

The SV Big Bertha #001 is located approximately 1.3 miles east of Lovington, NM. This spill site is in Unit F, Section 11, Township 16S, Range 36E, Latitude 32.9383888, Longitude -103.3277969, Lea County, NM. Figure 1 references a location map.

Per the New Mexico Bureau of Geology and Mineral Resources, the geology is in the Ogallala Formation (Lower Pliocene to middle Miocene). The soil in this area consists of Kimbrough gravelly loam, 0 to 3 percent slopes according to the United States Department of Agriculture Natural Resources Conservation Service soil survey (Appendix B). The drainage courses in this area are well-drained. There is a high potential for karst geology to be present around the Armstrong Energy Corporation (Figure 3).

According to the New Mexico Office of the State Engineer, depth to the nearest groundwater in this area is eighty-five feet below grade surface (BGS). According to the United States Geological Survey (USGS), the nearest groundwater is 62.7 feet BGS. The closest waterway is a manufactured pond located approximately 0.82 miles to the northwest of this location. See Appendix A for referenced water surveys.

Table 1 NMAC and Closure Criteria 19.15.29

Depth to Groundwater (Appendix A)	Constituent & Limits				
	Chlorides	Total TPH	GRO+DRO	BTEX	Benzene
<50'	600 mg/kg	100 mg/kg		50 mg/kg	10 mg/kg
51-100'	10,000 mg/kg	2,500 mg/kg	1,000 mg/kg	50 mg/kg	10 mg/kg
>100'	20,000 mg/kg	2,500 mg/kg	1,000 mg/kg	50 mg/kg	10 mg/kg

Reference Figure 2 for a Topographic map.

Release Information

NGRL0916335520: On March 31st, 2009, a lightning strike struck produced water tanks causing them to rupture and burn. Produced water released into lined containment area and surrounding pasture. They called a vacuum truck to location recovered the standing fluid.

Site Assessment and Soil Sampling Results

On September 8th, 2022, Pima Environmental Services mobilized personnel to the site to conduct delineation activities. Pima sampled the area surrounding the tank battery containment. The following data table include the results of this sampling event.

9-8-22 Soil Sample Results

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is 50'-100')								
ARMSTRONG ENERGY - BIG BERTHA #001								
Sample Date: 9/8/2022		NM Approved Laboratory Results						
Sample ID	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Cl mg/kg
S-1	1'	ND	ND	ND	ND	ND	0	110
	2'	ND	ND	ND	ND	ND	0	108
S-2	1'	ND	ND	ND	ND	ND	0	344
	2'	ND	ND	ND	ND	ND	0	77.3
S-3	1'	ND	ND	ND	38.7	50.5	89.2	612
	2'	ND	ND	ND	ND	ND	0	121
S-4	1'	ND	ND	ND	81.9	84.5	166.4	379
	2'	ND	ND	ND	ND	ND	0	139
S-5	1'	ND	ND	ND	ND	ND	0	2310
	2'	ND	ND	ND	ND	ND	0	172
S-6	1'	ND	ND	ND	ND	ND	0	4300
	2'	ND	ND	ND	ND	ND	0	182
S-7	1'	ND	ND	ND	44.8	ND	44.8	18900
	2'	ND	ND	ND	ND	ND	0	84
S-8	1'	ND	ND	ND	48.6	108	156.6	3400
	2'	ND	ND	ND	ND	ND	0	90.7
SW 1	6"	ND	ND	ND	ND	ND	0	ND
SW 2	6"	ND	ND	ND	ND	ND	0	ND
SW 3	6"	ND	ND	ND	ND	ND	0	ND
SW 4	6"	ND	ND	ND	ND	ND	0	ND
BG 1	6"	ND	ND	ND	ND	ND	0	33
BG 2	6"	ND	ND	ND	ND	ND	0	77.7

Nd: Non-Detect

Remediation Activities

On October 12th, 2022, Pima mobilized personnel and equipment to conduct remedial activities. We excavated the area overlapping soil samples (S-7) to a depth of two feet Bgs. All contaminated soil was removed and transported to a NMOCD approved landfill for disposal. Photographic documentation can be found in Appendix D.

On October 14th, 2022, after submitting the 48-hour notification (Appendix C), Pima collected confirmation samples. The laboratory results of this sampling event can be found in the following data table. Clean material was brought in and used to backfill the affected area and returned to its previous contour.

10-14-22 Confirmation Soil Sample Results

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is 50'-100')								
ARMSTRONG ENERGY - BIG BERTHA #001								
Sample Date: 10/14/2022		NM Approved Laboratory Results						
Sample ID	Depth (BGS)	BTEX mg/kg	Benzene mg/kg	GRO mg/kg	DRO mg/kg	MRO mg/kg	Total TPH mg/kg	Cl mg/kg
CS 1	2'	ND	ND	ND	ND	ND	0	ND
CSW 1	2'	ND	ND	ND	ND	ND	0	24
CSW 2	2'	ND	ND	ND	ND	ND	0	ND
CSW 3	2'	ND	ND	ND	ND	ND	0	ND
CSW 4	2'	ND	ND	ND	ND	ND	0	ND

ND- Analyte Not Detected

Complete laboratory reports can be found in Appendix E.

Closure Request

After careful review, Pima requests that this incident, nGRL0916335520, be closed. Armstrong Energy Corporation has complied with the applicable closure requirements set forth in rule 19.15.19.12 NMAC.

Should you have any questions or need additional information, please feel free to contact Sebastian Orozco at 619-721-4813 or Sebastian@pimaoil.com.

Respectfully,

Sebastian Orozco

Sebastian Orozco
Environmental Project Manager
Pima Environmental Services, LLC

Attachments

Figures:

- 1- Location Map
- 2- Topographic Map
- 3- Karst Map
- 4- Site Map
- 5- Confirmation Map

Appendices:

- Appendix A – Referenced Water Surveys
- Appendix B – Soil Survey and Geological Data
- Appendix C – C-141 Form and 48-Hour Notification
- Appendix D – Photographic Documentation
- Appendix E – Laboratory Reports



Pima Environmental Services

Figures:

1-Location Map

2-Topo Map

3-Karst Map


4-Site Map

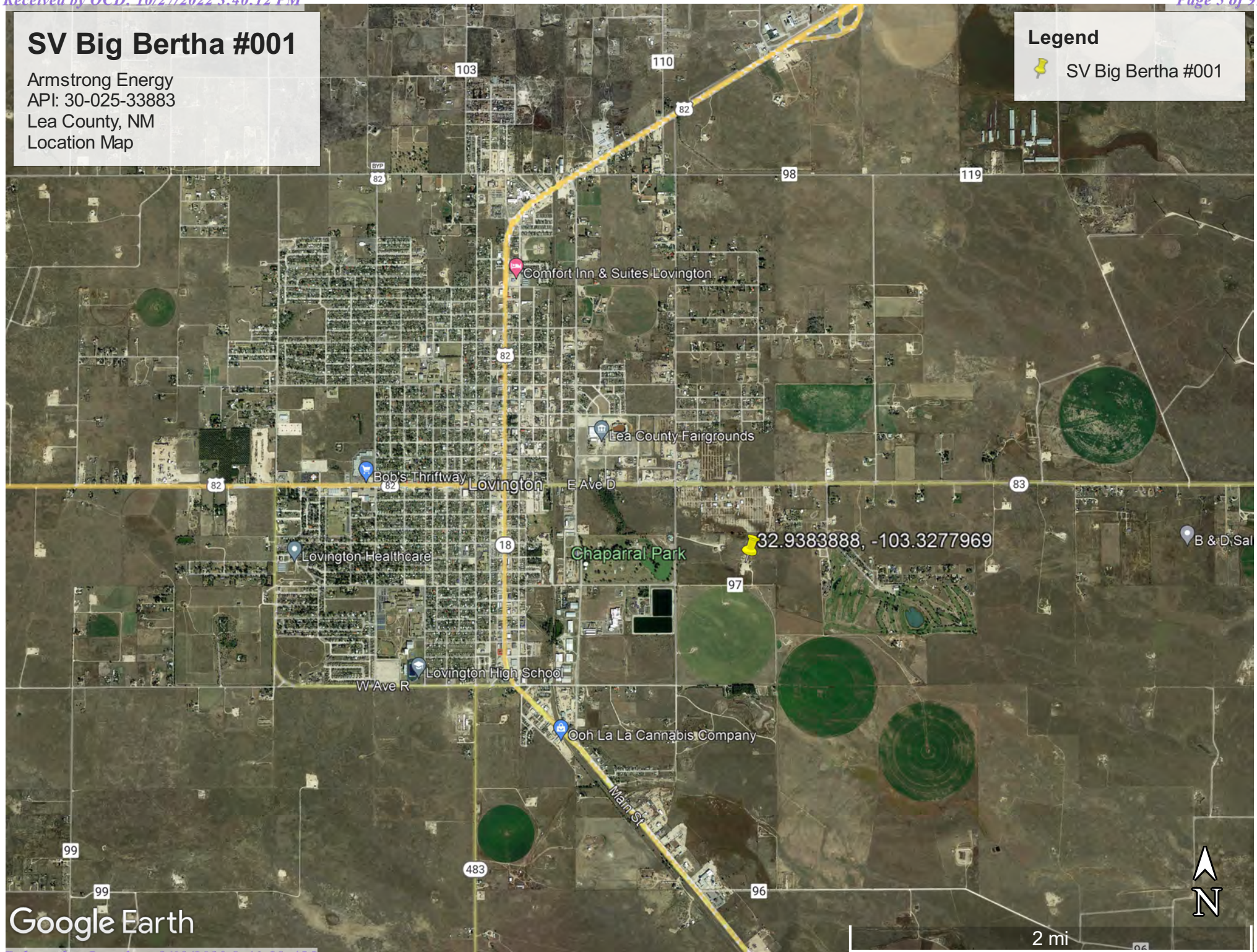
5-Confirmation Site Map

SV Big Bertha #001

Armstrong Energy
API: 30-025-33883
Lea County, NM
Location Map

Legend

 SV Big Bertha #001




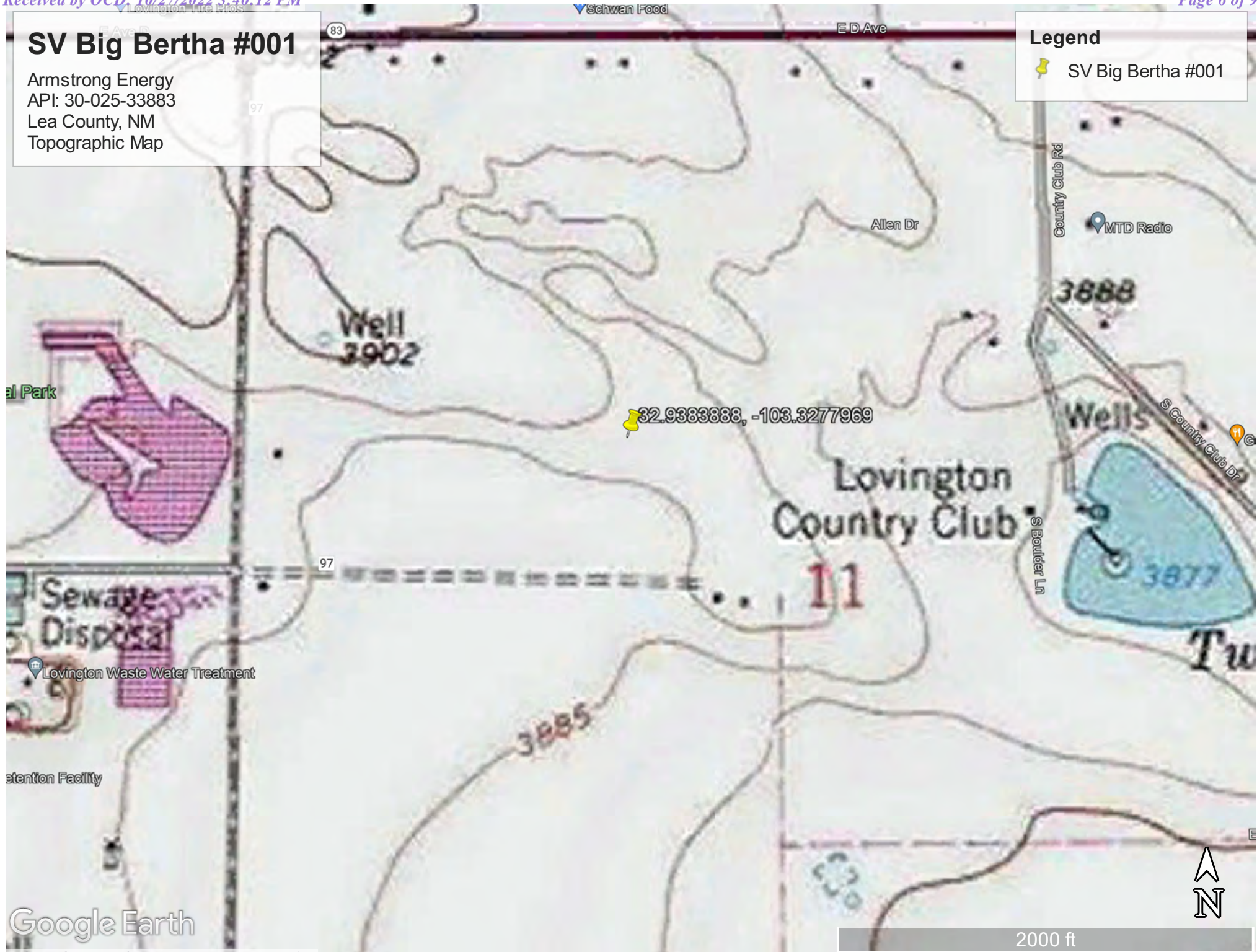
Google Earth

SV Big Bertha #001

Armstrong Energy
API: 30-025-33883
Lea County, NM
Topographic Map

Legend

 SV Big Bertha #001

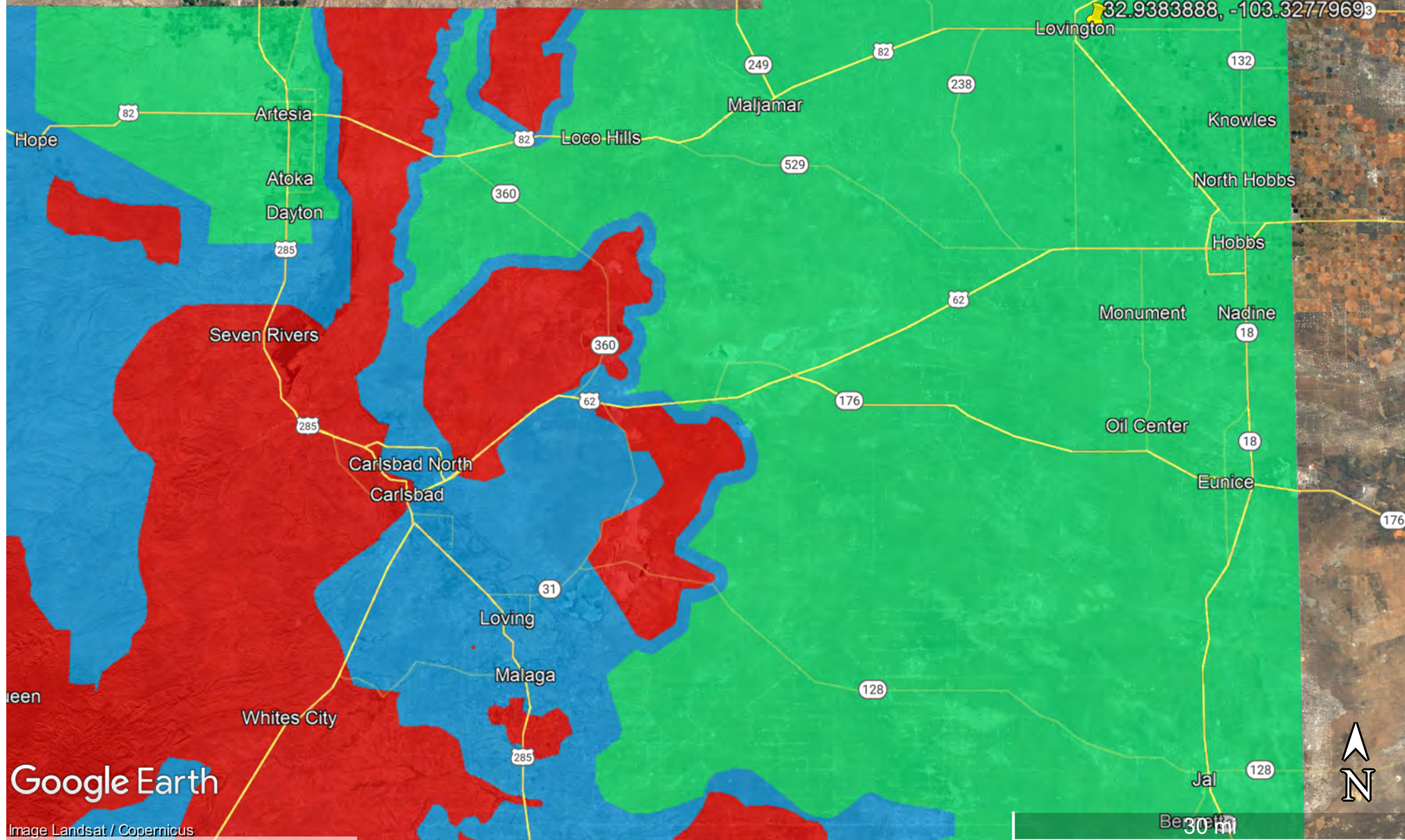


SV Big Bertha #001

Armstrong Energy
API: 30-025-33883
Lea County, NM
Karst Map

Legend

- High Karst
- Low Karst
- Medium Karst
- SB Big Bertha #001



Google Earth

Image Landsat / Copernicus

SV Big Bertha #001

Armstrong Energy
API:30-025-33883
Lea County, NM
Site Map

Legend

- Soil Samples
- SV Big Bertha #001



SV Big Bertha #001

Armstrong Energy
API:30-025-33883
Lea County, NM
Confirmation Map

Legend

- Confirmation Samples
- SV Big Betha #001



40 ft



Pima Environmental Services

Appendix A

Water Surveys:

OSE

USGS

Surface Water Map



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	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	DepthWell	DepthWater	Water Column
L 04434		L	LE			1	11	16S	36E	656170	3645911*	266	100	74	26
L 06102		L	LE			1	11	16S	36E	656170	3645911*	266	100	75	25
L 04005		L	LE				11	16S	36E	656583	3645505*	318	95	75	20
L 07741		L	LE	2	1	3	11	16S	36E	656074	3645405*	387	142	78	64
L 00135 POD3		L	LE		3	2	11	16S	36E	656774	3645725*	446	125	78	47
L 00135		L	LE	3	3	1	11	16S	36E	655868	3645609*	469	98		
L 00135	R	L	LE	3	3	1	11	16S	36E	655868	3645609*	469	98		
L 00135 POD5		L	LE	3	3	1	11	16S	36E	655868	3645609*	469	146	58	88
L 09053	R	L	LE	3	1	2	11	16S	36E	656667	3646028*	473	175	95	80
L 09054	R	L	LE	3	1	2	11	16S	36E	656667	3646028*	473	135	65	70
L 09054 POD2		L	LE	3	1	2	11	16S	36E	656667	3646028*	473	135	65	70
L 09195		L	LE	3	1	2	11	16S	36E	656667	3646028*	473	135	90	45
L 09198		L	LE	3	1	2	11	16S	36E	656667	3646028*	473	135	90	45
L 09330		L	LE	3	1	2	11	16S	36E	656667	3646028*	473	140	70	70
L 09331		L	LE	3	1	2	11	16S	36E	656667	3646028*	473	140	90	50
L 09340		L	LE	3	1	2	11	16S	36E	656667	3646028*	473	150	90	60
L 09492	R	L	LE	3	1	2	11	16S	36E	656667	3646028*	473	135	65	70
L 10354		L	LE	3	1	2	11	16S	36E	656667	3646028*	473	120	63	57
L 00135 POD2		L	LE	1	3	1	11	16S	36E	655868	3645809*	474	110	75	35
L 00135 POD2	R	L	LE	1	3	1	11	16S	36E	655868	3645809*	474	110	75	35
L 00265		L	LE	1	1	3	11	16S	36E	655874	3645405*	540	120	45	75
L 04099		L	LE	2	2	1	11	16S	36E	656465	3646220*	540	95	74	21
L 05808		L	LE	2	2	1	11	16S	36E	656465	3646220*	540	116	85	31
L 05685		L	LE		1	1	11	16S	36E	655963	3646114*	554	115	80	35
L 14587 POD1		L	LE	4	1	2	11	16S	36E	656845	3645945	573	165	85	80
L 00135 POD4		L	LE		1	4	11	16S	36E	656779	3645322*	585	149	75	74

Average Depth to Water: **75 feet**

Minimum Depth: **45 feet**

Maximum Depth: **95 feet**

Record Count: 26

UTM NAD83 Radius Search (in meters):

Easting (X): 656328.73

Northing (Y): 3645696.77


Radius: 600

*UTM location was derived from PLSS - see Help



New Mexico Office of the State Engineer

Point of Diversion Summary

		(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest)						(NAD83 UTM in meters)	
Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
221A8	L 14587 POD1	4	1	2	11	16S	36E	656845	3645945 
x									
Driller License:	1477	Driller Company:				M & W WATERWELL SERVICE			
Driller Name:	MAUCK, ROBERT								
Drill Start Date:	01/23/2019	Drill Finish Date:				01/24/2019		Plug Date:	
Log File Date:	01/28/2019	PCW Rcv Date:						Source:	Shallow
Pump Type:		Pipe Discharge Size:						Estimated Yield:	30 GPM
Casing Size:	5.00	Depth Well:				165 feet		Depth Water:	85 feet
x									
Water Bearing Stratifications:					Top	Bottom	Description		
					45	165	Limestone/Dolomite/Chalk		
x									
Casing Perforations:					Top	Bottom			
					125	165			

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.

10/27/22 2:01 PM

POINT OF DIVERSION SUMMARY



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National Water Information System: Web Interface

USGS Water Resources

Data Category:


Groundwater

Geographic Area:

United States

GO

Click to hide News Bulletins

- Explore the *NEW* [USGS National Water Dashboard](#) interactive map to access real-time water data from over 13,500 stations nationwide.
- Attention current WaterAlert users: NextGen WaterAlert is replacing Legacy WaterAlert. You must take action before 9/30/2022 to retain your alerts. [Read more.](#)
- [Full News](#) 

Groundwater levels for the Nation

 Important: [Next Generation Monitoring Location Page](#)

Search Results -- 1 sites found

site_no list =

- 325622103191501

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 325622103191501 16S.36E.11.241131

Available data for this site

Groundwater: Field measurements

GO

Lea County, New Mexico

Hydrologic Unit Code 12080003

Latitude 32°56'23", Longitude 103°19'16" NAD27

Land-surface elevation 3,886.00 feet above NGVD29

The depth of the well is 100 feet below land surface.

This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.

This well is completed in the Ogallala Formation (121OGLL) local aquifer.

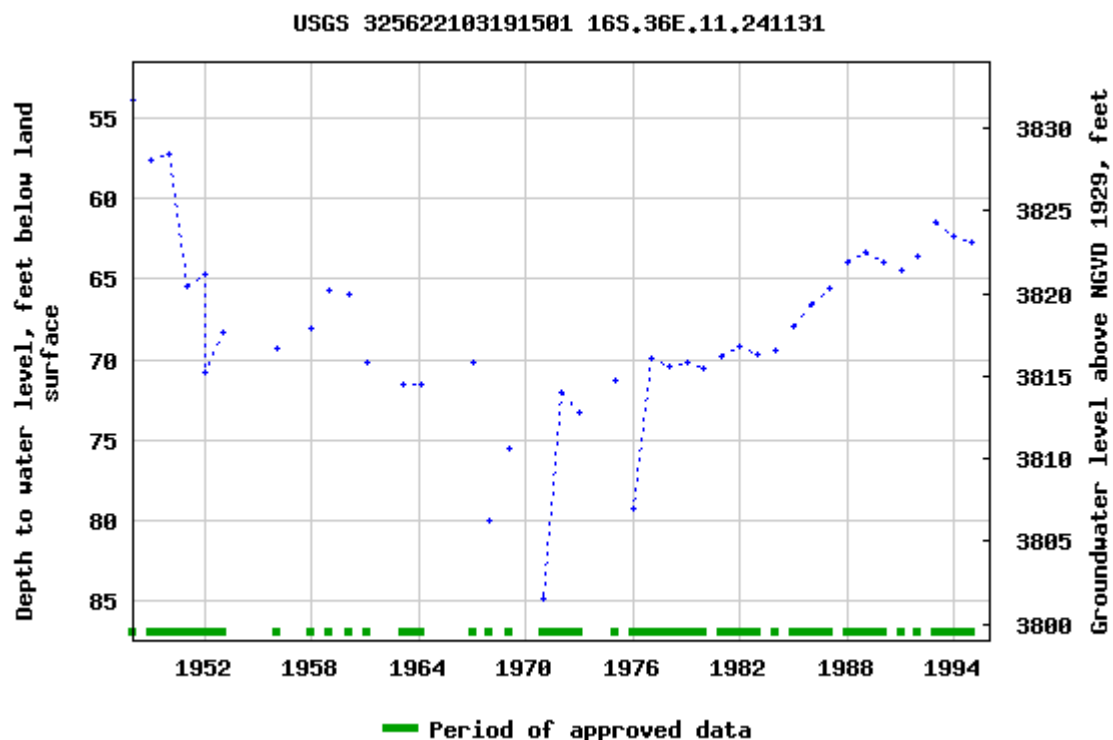
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Title: Groundwater for USA: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nwis/gwlevels?>

Page Contact Information: [USGS Water Data Support Team](#)

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0.63 0.48 nadww01





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National Water Information System: Web Interface

USGS Water Resources

Data Category:


Groundwater

Geographic Area:

United States

GO

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- [Full News](#) 

Groundwater levels for the Nation



Important: [Next Generation Monitoring Location Page](#)

Search Results -- 1 sites found

site_no list =

- 325533103185901

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 325533103185901 16S.36E.14.22113

Available data for this site

Groundwater: Field measurements

GO

Lea County, New Mexico

Hydrologic Unit Code 12080003

Latitude 32°55'43", Longitude 103°19'13" NAD27

Land-surface elevation 3,872.00 feet above NGVD29

The depth of the well is 84 feet below land surface.

This well is completed in the High Plains aquifer (N100HGHPLN) national aquifer.

This well is completed in the Ogallala Formation (121OGLL) local aquifer.

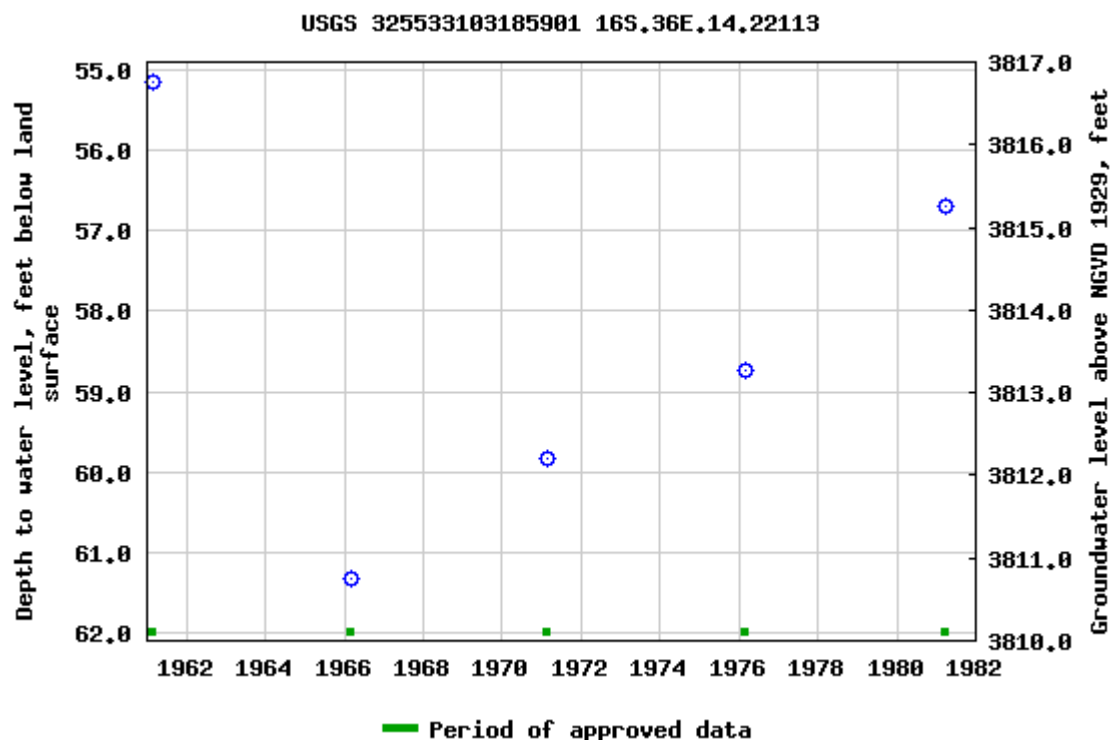
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Page Last Modified: 2022-09-21 15:58:27 EDT



0.58 0.51 nadww02



SV Big Bertha #001

Armstrong Energy
API: 30-025-33883
Lea County, NM
Surface Water Map

Legend

-  .82 Miles
-  SV Big Bertha #001



Google Earth



Pima Environmental Services

Appendix B

Soil Survey & Geological Data

FEMA Flood Map

Wetlands Map

Map Unit Description: Kimbrough gravelly loam, 0 to 3 percent slopes---Lea County, New Mexico

Lea County, New Mexico

Kg—Kimbrough gravelly loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tw42

Elevation: 2,500 to 4,800 feet

Mean annual precipitation: 14 to 16 inches

Mean annual air temperature: 57 to 63 degrees F

Frost-free period: 180 to 220 days

Farmland classification: Not prime farmland

Map Unit Composition

Kimbrough and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kimbrough

Setting

Landform: Playa rims, plains

Down-slope shape: Convex, linear

Across-slope shape: Concave, linear

Parent material: Loamy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 3 inches: gravelly loam

Bw - 3 to 10 inches: loam

Bkkm1 - 10 to 16 inches: cemented material

Bkkm2 - 16 to 80 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 4 to 18 inches to petrocalcic

Drainage class: Well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 95 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Sodium adsorption ratio, maximum: 1.0

Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s

Map Unit Description: Kimbrough gravelly loam, 0 to 3 percent slopes---Lea County, New Mexico

Hydrologic Soil Group: D
Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Minor Components

Eunice

Percent of map unit: 6 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Spraberry

Percent of map unit: 5 percent
Landform: Playa rims, plains
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Kenhill

Percent of map unit: 4 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R077DY038TX - Clay Loam 12-17" PZ
Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 18, Sep 10, 2021

National Flood Hazard Layer FIRMette



103°19'59"W 32°56'33"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

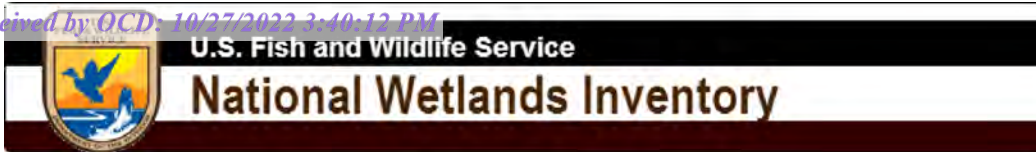
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/21/2022 at 4:02 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

0 250 500 1,000 1,500 2,000 Feet 1:6,000

103°19'21"W 32°56'3"N



Wetlands Map



September 21, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond

- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



Pima Environmental Services

Appendix C

C-141 Form

48-Hour Notification

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 Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nGRL0916335520
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible: Party Armstrong Energy Corporation	OGRID 1092
Contact Name: Kyle Alpers	Contact Telephone: 575-626-2727
Contact email: kalpers@aecnrm.com	Incident # (assigned by OCD): nGRL0916335520
Contact mailing address	PO Box 1973 Roswell, NM 88202

Location of Release Source

Latitude 32.9383888 _____ Longitude -103.3277969 _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: SV Big Bertha #001	Site Type: Produced Water
Date Release Discovered: 05/31/2009	API# (if applicable): 30-025-33883

Unit Letter	Section	Township	Range	County
F	11	16S	36E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls):	Volume Recovered (bbls):
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls): 500	Volume Recovered (bbls): 315
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

Lightning struck produced water tanks causing them to rupture and burn. Produced water was released into lined containment area and surrounding pasture. Vacuum trucks were used to recover fluids.


State of New Mexico
Oil Conservation Division

Incident ID	nGRL0916335520
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? This is considered a major release because it is over 25 BBLs.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.	
Printed Name: <u>Jeffery Tew</u>	Title: <u>Operations Engineer</u>
Signature: <u></u>	Date: <u>9/15/2022</u>
email: <u>jtew@aecn.com</u>	Telephone: <u>575-625-2222</u>
<u>OCD Only</u>	
Received by: <u>Jocelyn Harimon</u>	Date: <u>09/16/2022</u>

Incident ID	nGRL0916335520
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>85</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

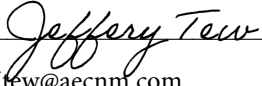
- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	nGRL0916335520
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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.

Printed Name: Jeffery Tew Title: Operations Engineer
Signature:  Date: 10/27/2022
email: Jtew@aecnm.com Telephone: 575-625-2222

OCD Only

Received by: Jocelyn Harimon Date: 10/28/2022

Incident ID	nGRL0916335520
District RP	
Facility ID	
Application ID	

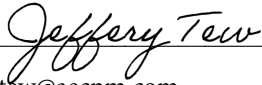
Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate OCD District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Jeffery Tew Title: Operations Engineer
Signature:  Date: 10/27/2022
email: Jtew@aecnrm.com Telephone: 575-625-2222

OCD Only

Received by: Jocelyn Harimon Date: 10/28/2022

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by:  Date: 2/13/2023

Printed Name: Brittany Hall Title: Environmental Specialist

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 143883

CONDITIONS

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 143883
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
jharimon	When submitting future reports regarding this release, please submit the calculations used or specific justification for the volumes reported on the initial C-141	9/16/2022



Gio PimaOil <gio@pimaoil.com>

SV Big Bertha 1 Inspection Report-NGRL0916335520

1 message

Gio PimaOil <gio@pimaoil.com>

Mon, Sep 12, 2022 at 3:51 PM

To: ocdonline@state.nm.us, Sebastian Pima Oil <sebastian@pimaoil.com>

Good Afternoon,

Pima Environmental would like to notify you that we will be conducting a liner Inspection at the SV Big Bertha 1 for incident NGRL0916335520. Pima personnel are scheduled to be on site for this Inspection event at approximately 6:00 a.m. On Thursday, September 15, 2022. If you have any questions or concerns, please let me know. Thank you.

--

Gio Gomez

Project Manager

cell-806-782-1151

Office- 575-964-7740

Pima Environmental Services, LLC.



Pima Environmental Services

Appendix D

Photographic Documentation



SITE PHOTOGRAPHS







Pima Environmental Services

Appendix E

Laboratory Reports

Report to:
Tom Bynum



envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Pima Environmental Services-Carlsbad

Project Name: Big Bertha #1-11

Work Order: E209060

Job Number: 22093-0001

Received: 9/14/2022

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
9/20/22

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.
Envirotech Inc. holds the NM SDWA certification for data reported. (Lab #NM00979)

Date Reported: 9/20/22

Tom Bynum
PO Box 247
Plains, TX 79355-0247



Project Name: Big Bertha #1-11
Workorder: E209060
Date Received: 9/14/2022 11:00:00AM

Tom Bynum,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 9/14/2022 11:00:00AM, under the Project Name: Big Bertha #1-11.

The analytical test results summarized in this report with the Project Name: Big Bertha #1-11 apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues regarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
Laboratory Director
Office: 505-632-1881
Cell: 775-287-1762
whinchman@envirotech-inc.com

Raina Schwanz
Laboratory Administrator
Office: 505-632-1881
rainaschwanz@envirotech-inc.com

Alexa Michaels
Sample Custody Officer
Office: 505-632-1881
labadmin@envirotech-inc.com

Field Offices:

Southern New Mexico Area
Lynn Jarboe
Technical Representative/Client Services
Office: 505-421-LABS(5227)
Cell: 505-320-4759
ljjarboe@envirotech-inc.com

West Texas Midland/Odessa Area
Rayny Hagan
Technical Representative
Office: 505-421-LABS(5227)

Envirotech Web Address: www.envirotech-inc.com

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Sample Summary

Pima Environmental Services-Carlsbad	Project Name:	Big Bertha #1-11	Reported: 09/20/22 16:49
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
S.1 1'	E209060-01A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.1 2'	E209060-02A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.2 1'	E209060-03A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.2 2'	E209060-04A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.3 1'	E209060-05A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.3 2'	E209060-06A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.4 1'	E209060-07A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.4 2'	E209060-08A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.5 1'	E209060-09A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.5 2'	E209060-10A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.6 1'	E209060-11A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.6 2'	E209060-12A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.7 1'	E209060-13A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.7 2'	E209060-14A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.8 1'	E209060-15A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
S.8 2'	E209060-16A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
SW1	E209060-17A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
SW2	E209060-18A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
SW3	E209060-19A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
SW4	E209060-20A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
BG1	E209060-21A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.
BG2	E209060-22A	Soil	09/08/22	09/14/22	Glass Jar, 4 oz.



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.1 1'
E209060-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	101 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	82.8 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	28.2	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	59.7	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	105 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	110	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.1 2'

E209060-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		102 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		82.4 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		103 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	108	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.2 1'

E209060-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		102 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		81.1 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		99.7 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	344	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.2 2'

E209060-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		101 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		81.7 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		111 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	77.3	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.3 1'

E209060-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.6 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	83.2 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	38.7	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	50.5	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	110 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	612	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.3 2'

E209060-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		101 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		82.1 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		84.4 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	121	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.4 1'

E209060-07

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		100 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		81.7 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	81.9	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	84.5	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		82.9 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	379	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.4 2'

E209060-08

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		102 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		80.5 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		79.8 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	139	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.5 1'

E209060-09

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		100 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		84.1 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		82.5 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	2310	40.0	2	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.5 2'

E209060-10

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.7 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	83.0 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	80.3 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	172	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.6 1'

E209060-11

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		100 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		81.7 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		76.9 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	4300	40.0	2	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.6 2'

E209060-12

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		100 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		82.5 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		83.6 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	182	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.7 1'

E209060-13

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.3 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	82.3 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	44.8	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	76.1 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	18900	1000	50	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.7 2'

E209060-14

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.3 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	82.6 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	83.8 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	84.0	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.8 1'

E209060-15

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.8 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	82.2 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	48.6	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	108	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	78.3 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	3400	40.0	2	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

S.8 2'

E209060-16

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.3 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	82.9 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	85.0 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	90.7	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

SW1

E209060-17

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.2 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	83.0 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	82.0 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	ND	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

SW2

E209060-18

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		100 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		81.9 %	70-130	09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		82.0 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	ND	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

SW3

E209060-19

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.2 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg	Analyst: IY		Batch: 2238037	
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	81.8 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg	Analyst: JL		Batch: 2238044	
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	83.1 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg	Analyst: RAS		Batch: 2238074	
Chloride	ND	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

SW4

E209060-20

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Benzene	ND	0.0250	1	09/14/22	09/16/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/16/22	
Toluene	ND	0.0250	1	09/14/22	09/16/22	
o-Xylene	ND	0.0250	1	09/14/22	09/16/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/16/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/16/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.6 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238037
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/16/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	83.0 %	70-130		09/14/22	09/16/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238044
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	80.8 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238074
Chloride	ND	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

BG1

E209060-21

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238036
Benzene	ND	0.0250	1	09/14/22	09/15/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/15/22	
Toluene	ND	0.0250	1	09/14/22	09/15/22	
o-Xylene	ND	0.0250	1	09/14/22	09/15/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/15/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/15/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
		100 %	70-130	09/14/22	09/15/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238036
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/15/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
		79.2 %	70-130	09/14/22	09/15/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238045
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
		62.5 %	50-200	09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238073
Chloride	33.0	20.0	1	09/16/22	09/19/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: Big Bertha #1-11
Project Number: 22093-0001
Project Manager: Tom Bynum

Reported:
9/20/2022 4:49:44PM

BG2

E209060-22

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238036
Benzene	ND	0.0250	1	09/14/22	09/15/22	
Ethylbenzene	ND	0.0250	1	09/14/22	09/15/22	
Toluene	ND	0.0250	1	09/14/22	09/15/22	
o-Xylene	ND	0.0250	1	09/14/22	09/15/22	
p,m-Xylene	ND	0.0500	1	09/14/22	09/15/22	
Total Xylenes	ND	0.0250	1	09/14/22	09/15/22	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>						
	99.8 %	70-130		09/14/22	09/15/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: IY		Batch: 2238036
Gasoline Range Organics (C6-C10)	ND	20.0	1	09/14/22	09/15/22	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>						
	80.6 %	70-130		09/14/22	09/15/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2238045
Diesel Range Organics (C10-C28)	ND	25.0	1	09/14/22	09/16/22	
Oil Range Organics (C28-C36)	ND	50.0	1	09/14/22	09/16/22	
<i>Surrogate: n-Nonane</i>						
	99.0 %	50-200		09/14/22	09/16/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2238073
Chloride	77.7	20.0	1	09/16/22	09/19/22	



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	Big Bertha #1-11	Reported:
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	9/20/2022 4:49:44PM

Volatile Organics by EPA 8021B

Analyst: RKS

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2238036-BLK1)

Prepared: 09/14/22 Analyzed: 09/15/22

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: 4-Bromochlorobenzene-PID	8.13		8.00		102	70-130			

LCS (2238036-BS1)

Prepared: 09/14/22 Analyzed: 09/15/22

Benzene	4.58	0.0250	5.00		91.7	70-130			
Ethylbenzene	3.83	0.0250	5.00		76.7	70-130			
Toluene	4.05	0.0250	5.00		81.0	70-130			
o-Xylene	3.92	0.0250	5.00		78.5	70-130			
p,m-Xylene	7.79	0.0500	10.0		77.9	70-130			
Total Xylenes	11.7	0.0250	15.0		78.1	70-130			
Surrogate: 4-Bromochlorobenzene-PID	8.17		8.00		102	70-130			

LCS Dup (2238036-BSD1)

Prepared: 09/14/22 Analyzed: 09/15/22

Benzene	5.35	0.0250	5.00		107	70-130	15.5	20	
Ethylbenzene	4.44	0.0250	5.00		88.9	70-130	14.7	20	
Toluene	4.70	0.0250	5.00		94.1	70-130	14.9	20	
o-Xylene	4.54	0.0250	5.00		90.7	70-130	14.5	20	
p,m-Xylene	9.00	0.0500	10.0		90.0	70-130	14.3	20	
Total Xylenes	13.5	0.0250	15.0		90.2	70-130	14.4	20	
Surrogate: 4-Bromochlorobenzene-PID	8.24		8.00		103	70-130			



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	Big Bertha #1-11	Reported:
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	9/20/2022 4:49:44PM

Volatile Organics by EPA 8021B

Analyst: IY

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2238037-BLK1)

Prepared: 09/14/22 Analyzed: 09/15/22

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: 4-Bromochlorobenzene-PID	7.98		8.00		99.8	70-130			

LCS (2238037-BS1)

Prepared: 09/14/22 Analyzed: 09/15/22

Benzene	5.01	0.0250	5.00		100	70-130			
Ethylbenzene	4.13	0.0250	5.00		82.5	70-130			
Toluene	4.39	0.0250	5.00		87.7	70-130			
o-Xylene	4.20	0.0250	5.00		84.0	70-130			
p,m-Xylene	8.33	0.0500	10.0		83.3	70-130			
Total Xylenes	12.5	0.0250	15.0		83.5	70-130			
Surrogate: 4-Bromochlorobenzene-PID	7.90		8.00		98.8	70-130			

Matrix Spike (2238037-MS1)

Source: E209060-05

Prepared: 09/14/22 Analyzed: 09/15/22

Benzene	4.84	0.0250	5.00	ND	96.8	54-133			
Ethylbenzene	4.01	0.0250	5.00	ND	80.2	61-133			
Toluene	4.26	0.0250	5.00	ND	85.2	61-130			
o-Xylene	4.09	0.0250	5.00	ND	81.8	63-131			
p,m-Xylene	8.12	0.0500	10.0	ND	81.2	63-131			
Total Xylenes	12.2	0.0250	15.0	ND	81.4	63-131			
Surrogate: 4-Bromochlorobenzene-PID	7.93		8.00		99.1	70-130			

Matrix Spike Dup (2238037-MSD1)

Source: E209060-05

Prepared: 09/14/22 Analyzed: 09/15/22

Benzene	5.15	0.0250	5.00	ND	103	54-133	6.14	20	
Ethylbenzene	4.27	0.0250	5.00	ND	85.4	61-133	6.20	20	
Toluene	4.53	0.0250	5.00	ND	90.5	61-130	6.08	20	
o-Xylene	4.34	0.0250	5.00	ND	86.8	63-131	5.91	20	
p,m-Xylene	8.64	0.0500	10.0	ND	86.4	63-131	6.20	20	
Total Xylenes	13.0	0.0250	15.0	ND	86.5	63-131	6.11	20	
Surrogate: 4-Bromochlorobenzene-PID	7.94		8.00		99.2	70-130			



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	Big Bertha #1-11	Reported: 9/20/2022 4:49:44PM
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: RKS

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2238036-BLK1)					Prepared: 09/14/22 Analyzed: 09/15/22				
Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.28		8.00		78.5	70-130			

LCS (2238036-BS2)					Prepared: 09/14/22 Analyzed: 09/15/22				
Gasoline Range Organics (C6-C10)	51.8	20.0	50.0		104	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.36		8.00		79.5	70-130			

LCS Dup (2238036-BSD2)					Prepared: 09/14/22 Analyzed: 09/16/22				
Gasoline Range Organics (C6-C10)	50.3	20.0	50.0		101	70-130	2.93	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.75		8.00		84.4	70-130			



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	Big Bertha #1-11	Reported:
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	9/20/2022 4:49:44PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: IY

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2238037-BLK1)

Prepared: 09/14/22 Analyzed: 09/15/22

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.40		8.00		80.0	70-130			

LCS (2238037-BS2)

Prepared: 09/14/22 Analyzed: 09/15/22

Gasoline Range Organics (C6-C10)	47.8	20.0	50.0		95.6	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.54		8.00		81.8	70-130			

Matrix Spike (2238037-MS2)

Source: E209060-05

Prepared: 09/14/22 Analyzed: 09/15/22

Gasoline Range Organics (C6-C10)	48.6	20.0	50.0	ND	97.2	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.56		8.00		82.0	70-130			

Matrix Spike Dup (2238037-MSD2)

Source: E209060-05

Prepared: 09/14/22 Analyzed: 09/15/22

Gasoline Range Organics (C6-C10)	43.9	20.0	50.0	ND	87.8	70-130	10.2	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	6.41		8.00		80.2	70-130			



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	Big Bertha #1-11	Reported:
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	9/20/2022 4:49:44PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: JL

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2238044-BLK1)

Prepared: 09/14/22 Analyzed: 09/16/22

Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: <i>n</i> -Nonane	54.1		50.0		108	50-200			

LCS (2238044-BS1)

Prepared: 09/14/22 Analyzed: 09/16/22

Diesel Range Organics (C10-C28)	283	25.0	250		113	38-132			
Surrogate: <i>n</i> -Nonane	55.4		50.0		111	50-200			

Matrix Spike (2238044-MS1)

Source: E209060-03

Prepared: 09/14/22 Analyzed: 09/16/22

Diesel Range Organics (C10-C28)	288	25.0	250	ND	115	38-132			
Surrogate: <i>n</i> -Nonane	54.2		50.0		108	50-200			

Matrix Spike Dup (2238044-MSD1)

Source: E209060-03

Prepared: 09/14/22 Analyzed: 09/16/22

Diesel Range Organics (C10-C28)	279	25.0	250	ND	112	38-132	3.17	20	
Surrogate: <i>n</i> -Nonane	51.3		50.0		103	50-200			



QC Summary Data

Pima Environmental Services-Carlsbad PO Box 247 Plains TX, 79355-0247	Project Name: Big Bertha #1-11 Project Number: 22093-0001 Project Manager: Tom Bynum	Reported: 9/20/2022 4:49:44PM
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Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: JL

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2238045-BLK1)

Prepared: 09/14/22 Analyzed: 09/16/22

Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	44.8		50.0		89.6	50-200			

LCS (2238045-BS1)

Prepared: 09/14/22 Analyzed: 09/16/22

Diesel Range Organics (C10-C28)	257	25.0	250		103	38-132			
Surrogate: n-Nonane	46.8		50.0		93.6	50-200			

Matrix Spike (2238045-MS1)

Source: E209058-04

Prepared: 09/14/22 Analyzed: 09/16/22

Diesel Range Organics (C10-C28)	252	25.0	250	ND	101	38-132			
Surrogate: n-Nonane	45.7		50.0		91.3	50-200			

Matrix Spike Dup (2238045-MSD1)

Source: E209058-04

Prepared: 09/14/22 Analyzed: 09/16/22

Diesel Range Organics (C10-C28)	258	25.0	250	ND	103	38-132	2.32	20	
Surrogate: n-Nonane	47.3		50.0		94.6	50-200			



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	Big Bertha #1-11	Reported:
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	9/20/2022 4:49:44PM

Anions by EPA 300.0/9056A

Analyst: RAS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2238073-BLK1)					Prepared: 09/16/22 Analyzed: 09/18/22				
Chloride	ND	20.0							
LCS (2238073-BS1)					Prepared: 09/16/22 Analyzed: 09/18/22				
Chloride	252	20.0	250		101	90-110			
Matrix Spike (2238073-MS1)					Source: E209059-01		Prepared: 09/16/22 Analyzed: 09/18/22		
Chloride	2140	40.0	250	2090	19.7	80-120			M2
Matrix Spike Dup (2238073-MSD1)					Source: E209059-01		Prepared: 09/16/22 Analyzed: 09/18/22		
Chloride	2330	40.0	250	2090	95.2	80-120	8.43	20	



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	Big Bertha #1-11	Reported:
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	9/20/2022 4:49:44PM

Anions by EPA 300.0/9056A

Analyst: RAS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2238074-BLK1)					Prepared: 09/16/22 Analyzed: 09/19/22				
Chloride	ND	20.0							
LCS (2238074-BS1)					Prepared: 09/16/22 Analyzed: 09/19/22				
Chloride	250	20.0	250		100	90-110			
Matrix Spike (2238074-MS1)					Source: E209060-01		Prepared: 09/16/22 Analyzed: 09/19/22		
Chloride	361	20.0	250	110	100	80-120			
Matrix Spike Dup (2238074-MSD1)					Source: E209060-01		Prepared: 09/16/22 Analyzed: 09/19/22		
Chloride	400	20.0	250	110	116	80-120	10.3	20	

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures.
Therefore, hand calculated values may differ slightly.



Definitions and Notes

Pima Environmental Services-Carlsbad	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	Reported:
Plains TX, 79355-0247	Project Manager:	Tom Bynum	09/20/22 16:49

- M2 Matrix spike recovery was outside quality control limits. The associated LCS spike recovery was acceptable.
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- RPD Relative Percent Difference
- DNI Did Not Ignite

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.

Project Information

Chain of Custody

Page 1 of 3

Client: <u>Pima Environmental Services</u>					Bill To					Lab Use Only					TAT				EPA Program					
Project: <u>BIA Bertha #1-11</u>					Attention: <u>Armstrong Energy</u>					Lab WO# <u>E209060220936001</u>					Job Number				1D	2D	3D	Standard	CWA	SDWA
Project Manager: <u>Tom Bynum</u>					Address:																	X		
Address: <u>5614 N. Lovington Hwy.</u>					City, State, Zip																			
City, State, Zip <u>Hobbs, NM, 88240</u>					Phone:																			
Phone: <u>580-748-1613</u>					Email:																			
Email: <u>tom@pimaoil.com</u>					Pima Project # <u>19-6</u>																			
Report due by:																								

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/DRO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	BGDOC NM	BGDOC TX	Remarks
8:00	9/8/22	S	1	S.1 1'	1								X	
8:05				S.1 2'	2									
8:10				S.2 1'	3									
8:15				S.2 2'	4									
8:20				S.3 1'	5									
8:25				S.3 2'	6									
8:30				S.4 1'	7									
8:35				S.4 2'	8									
8:40				S.5 1'	9									
8:45				S.5 2'	10									

Additional Instructions: IF NOT bin to Pima!

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Relinquished by: (Signature) Abdandra Benavides Date 9/13/22 Time 2:30 Received by: (Signature) Sebastian@pimaoil.com Date 9-13-22 Time 3:50

Relinquished by: (Signature) [Signature] Date 9-13-22 Time 4:15 Received by: (Signature) [Signature] Date 9/14/22 Time 11:00

Relinquished by: (Signature) _____ Date _____ Time _____ Received by: (Signature) _____ Date _____ Time _____

Received on ice: Y N

AVG Temp °C 4

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____ Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.





Envirotech Analytical Laboratory

Printed: 9/14/2022 3:20:47PM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.

If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Pima Environmental Services-Carlsbad	Date Received:	09/14/22 11:00	Work Order ID:	E209060
Phone:	(575) 631-6977	Date Logged In:	09/13/22 16:47	Logged In By:	Caitlin Christian
Email:	tom@pimaoil.com	Due Date:	09/20/22 17:00 (4 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC? Yes
2. Does the number of samples per sampling site location match the COC? Yes
3. Were samples dropped off by client or carrier? Yes
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? Yes
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: UPSComments/ResolutionSample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT? Yes

Sample Cooler

7. Was a sample cooler received? Yes
8. If yes, was cooler received in good condition? Yes
9. Was the sample(s) received intact, i.e., not broken? Yes
10. Were custody/security seals present? No
11. If yes, were custody/security seals intact? NA
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

13. If no visible ice, record the temperature. Actual sample temperature: 4°C

Sample Container

14. Are aqueous VOC samples present? No
15. Are VOC samples collected in VOA Vials? NA
16. Is the head space less than 6-8 mm (pea sized or less)? NA
17. Was a trip blank (TB) included for VOC analyses? NA
18. Are non-VOC samples collected in the correct containers? Yes
19. Is the appropriate volume/weight or number of sample containers collected? Yes

Field Label

20. Were field sample labels filled out with the minimum information:
 - Sample ID? Yes
 - Date/Time Collected? Yes
 - Collectors name? No

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved? No
22. Are sample(s) correctly preserved? NA
24. Is lab filtration required and/or requested for dissolved metals? No

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase? No
27. If yes, does the COC specify which phase(s) is to be analyzed? NA

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory? No
29. Was a subcontract laboratory specified by the client and if so who? NA Subcontract Lab: na

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.

Report to:
Tom Bynum



envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Pima Environmental Services-Carlsbad

Project Name: SV Big Bertha #001

Work Order: E210081

Job Number: 21064-0001

Received: 10/15/2022

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
10/21/22

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com



Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc. attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc. holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc. holds the Texas TNI certification T104704557 for data reported.
Envirotech Inc. holds the NM SDWA certification for data reported. (Lab #NM00979)

Date Reported: 10/21/22

Tom Bynum
PO Box 247
Plains, TX 79355-0247



Project Name: SV Big Bertha #001
Workorder: E210081
Date Received: 10/15/2022 11:40:00AM

Tom Bynum,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 10/15/2022 11:40:00AM, under the Project Name: SV Big Bertha #001.

The analytical test results summarized in this report with the Project Name: SV Big Bertha #001 apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues regarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
Laboratory Director
Office: 505-632-1881
Cell: 775-287-1762
whinchman@envirotech-inc.com

Raina Schwanz
Laboratory Administrator
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West Texas Midland/Odessa Area
Rayny Hagan
Technical Representative
Office: 505-421-LABS(5227)

Envirotech Web Address: www.envirotech-inc.com

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Sample Summary

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	Reported: 10/21/22 13:18
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
CS1	E210081-01A	Soil	10/14/22	10/15/22	Glass Jar, 2 oz.
CSW1	E210081-02A	Soil	10/14/22	10/15/22	Glass Jar, 2 oz.
CSW2	E210081-03A	Soil	10/14/22	10/15/22	Glass Jar, 2 oz.
CSW3	E210081-04A	Soil	10/14/22	10/15/22	Glass Jar, 2 oz.
CSW4	E210081-05A	Soil	10/14/22	10/15/22	Glass Jar, 2 oz.



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: SV Big Bertha #001
Project Number: 21064-0001
Project Manager: Tom Bynum

Reported:
10/21/2022 1:18:55PM

CS1

E210081-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Benzene	ND	0.0250	1	10/17/22	10/18/22	
Ethylbenzene	ND	0.0250	1	10/17/22	10/18/22	
Toluene	ND	0.0250	1	10/17/22	10/18/22	
o-Xylene	ND	0.0250	1	10/17/22	10/18/22	
p,m-Xylene	ND	0.0500	1	10/17/22	10/18/22	
Total Xylenes	ND	0.0250	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	96.4 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	99.4 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	102 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	96.4 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	99.4 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	102 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2243076
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/22	10/21/22	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/22	10/21/22	
Surrogate: n-Nonane	118 %	50-200		10/20/22	10/21/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2243091
Chloride	ND	20.0	1	10/20/22	10/21/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: SV Big Bertha #001
Project Number: 21064-0001
Project Manager: Tom Bynum

Reported:
10/21/2022 1:18:55PM

CSW1

E210081-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Benzene	ND	0.0250	1	10/17/22	10/18/22	
Ethylbenzene	ND	0.0250	1	10/17/22	10/18/22	
Toluene	ND	0.0250	1	10/17/22	10/18/22	
o-Xylene	ND	0.0250	1	10/17/22	10/18/22	
p,m-Xylene	ND	0.0500	1	10/17/22	10/18/22	
Total Xylenes	ND	0.0250	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	97.4 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	96.4 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	103 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	97.4 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	96.4 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	103 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2243076
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/22	10/21/22	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/22	10/21/22	
Surrogate: n-Nonane	112 %	50-200		10/20/22	10/21/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2243091
Chloride	24.0	20.0	1	10/20/22	10/21/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: SV Big Bertha #001
Project Number: 21064-0001
Project Manager: Tom Bynum

Reported:
10/21/2022 1:18:55PM

CSW2

E210081-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Benzene	ND	0.0250	1	10/17/22	10/18/22	
Ethylbenzene	ND	0.0250	1	10/17/22	10/18/22	
Toluene	ND	0.0250	1	10/17/22	10/18/22	
o-Xylene	ND	0.0250	1	10/17/22	10/18/22	
p,m-Xylene	ND	0.0500	1	10/17/22	10/18/22	
Total Xylenes	ND	0.0250	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	99.1 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	99.9 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	102 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	99.1 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	99.9 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	102 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2243076
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/22	10/21/22	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/22	10/21/22	
Surrogate: n-Nonane	119 %	50-200		10/20/22	10/21/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2243091
Chloride	ND	20.0	1	10/20/22	10/21/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: SV Big Bertha #001
Project Number: 21064-0001
Project Manager: Tom Bynum

Reported:
10/21/2022 1:18:55PM

CSW3

E210081-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Benzene	ND	0.0250	1	10/17/22	10/18/22	
Ethylbenzene	ND	0.0250	1	10/17/22	10/18/22	
Toluene	ND	0.0250	1	10/17/22	10/18/22	
o-Xylene	ND	0.0250	1	10/17/22	10/18/22	
p,m-Xylene	ND	0.0500	1	10/17/22	10/18/22	
Total Xylenes	ND	0.0250	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	96.7 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	97.6 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	103 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	96.7 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	97.6 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	103 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2243076
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/22	10/21/22	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/22	10/21/22	
Surrogate: n-Nonane	117 %	50-200		10/20/22	10/21/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2243091
Chloride	ND	20.0	1	10/20/22	10/21/22	



Sample Data

Pima Environmental Services-Carlsbad
PO Box 247
Plains TX, 79355-0247

Project Name: SV Big Bertha #001
Project Number: 21064-0001
Project Manager: Tom Bynum

Reported:
10/21/2022 1:18:55PM

CSW4

E210081-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Benzene	ND	0.0250	1	10/17/22	10/18/22	
Ethylbenzene	ND	0.0250	1	10/17/22	10/18/22	
Toluene	ND	0.0250	1	10/17/22	10/18/22	
o-Xylene	ND	0.0250	1	10/17/22	10/18/22	
p,m-Xylene	ND	0.0500	1	10/17/22	10/18/22	
Total Xylenes	ND	0.0250	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	99.1 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	98.2 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	104 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - GRO						
	mg/kg	mg/kg		Analyst: RKS		Batch: 2243006
Gasoline Range Organics (C6-C10)	ND	20.0	1	10/17/22	10/18/22	
Surrogate: Bromofluorobenzene	99.1 %	70-130		10/17/22	10/18/22	
Surrogate: 1,2-Dichloroethane-d4	98.2 %	70-130		10/17/22	10/18/22	
Surrogate: Toluene-d8	104 %	70-130		10/17/22	10/18/22	
Nonhalogenated Organics by EPA 8015D - DRO/ORO						
	mg/kg	mg/kg		Analyst: JL		Batch: 2243076
Diesel Range Organics (C10-C28)	ND	25.0	1	10/20/22	10/21/22	
Oil Range Organics (C28-C36)	ND	50.0	1	10/20/22	10/21/22	
Surrogate: n-Nonane	120 %	50-200		10/20/22	10/21/22	
Anions by EPA 300.0/9056A						
	mg/kg	mg/kg		Analyst: RAS		Batch: 2243091
Chloride	ND	20.0	1	10/20/22	10/21/22	



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	Reported:
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	10/21/2022 1:18:55PM

Volatile Organic Compounds by EPA 8260B

Analyst: RKS

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2243006-BLK1)

Prepared: 10/17/22 Analyzed: 10/17/22

Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: Bromofluorobenzene	0.491		0.500		98.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.478		0.500		95.6	70-130			
Surrogate: Toluene-d8	0.513		0.500		103	70-130			

LCS (2243006-BS1)

Prepared: 10/17/22 Analyzed: 10/17/22

Benzene	2.56	0.0250	2.50		103	70-130			
Ethylbenzene	2.58	0.0250	2.50		103	70-130			
Toluene	2.52	0.0250	2.50		101	70-130			
o-Xylene	2.42	0.0250	2.50		96.9	70-130			
p,m-Xylene	4.82	0.0500	5.00		96.4	70-130			
Total Xylenes	7.24	0.0250	7.50		96.6	70-130			
Surrogate: Bromofluorobenzene	0.494		0.500		98.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.476		0.500		95.1	70-130			
Surrogate: Toluene-d8	0.515		0.500		103	70-130			

Matrix Spike (2243006-MS1)

Source: E210077-02

Prepared: 10/17/22 Analyzed: 10/17/22

Benzene	2.13	0.0250	2.50	ND	85.1	48-131			
Ethylbenzene	2.17	0.0250	2.50	ND	86.9	45-135			
Toluene	2.11	0.0250	2.50	ND	84.4	48-130			
o-Xylene	2.08	0.0250	2.50	ND	83.2	43-135			
p,m-Xylene	4.07	0.0500	5.00	ND	81.4	43-135			
Total Xylenes	6.15	0.0250	7.50	ND	82.0	43-135			
Surrogate: Bromofluorobenzene	0.506		0.500		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.457		0.500		91.3	70-130			
Surrogate: Toluene-d8	0.515		0.500		103	70-130			

Matrix Spike Dup (2243006-MSD1)

Source: E210077-02

Prepared: 10/17/22 Analyzed: 10/17/22

Benzene	2.48	0.0250	2.50	ND	99.0	48-131	15.1	23	
Ethylbenzene	2.54	0.0250	2.50	ND	102	45-135	15.6	27	
Toluene	2.51	0.0250	2.50	ND	101	48-130	17.5	24	
o-Xylene	2.33	0.0250	2.50	ND	93.3	43-135	11.5	27	
p,m-Xylene	4.74	0.0500	5.00	ND	94.9	43-135	15.3	27	
Total Xylenes	7.08	0.0250	7.50	ND	94.4	43-135	14.0	27	
Surrogate: Bromofluorobenzene	0.468		0.500		93.5	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.443		0.500		88.5	70-130			
Surrogate: Toluene-d8	0.523		0.500		105	70-130			



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	Reported:
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	10/21/2022 1:18:55PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: RKS

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2243006-BLK1)

Prepared: 10/17/22 Analyzed: 10/17/22

Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: Bromofluorobenzene	0.491		0.500		98.1	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.478		0.500		95.6	70-130			
Surrogate: Toluene-d8	0.513		0.500		103	70-130			

LCS (2243006-BS2)

Prepared: 10/17/22 Analyzed: 10/17/22

Gasoline Range Organics (C6-C10)	58.2	20.0	50.0		116	70-130			
Surrogate: Bromofluorobenzene	0.498		0.500		99.6	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.497		0.500		99.4	70-130			
Surrogate: Toluene-d8	0.529		0.500		106	70-130			

Matrix Spike (2243006-MS2)

Source: E210077-02

Prepared: 10/17/22 Analyzed: 10/17/22

Gasoline Range Organics (C6-C10)	54.0	20.0	50.0	ND	108	70-130			
Surrogate: Bromofluorobenzene	0.490		0.500		97.9	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.475		0.500		94.9	70-130			
Surrogate: Toluene-d8	0.519		0.500		104	70-130			

Matrix Spike Dup (2243006-MSD2)

Source: E210077-02

Prepared: 10/17/22 Analyzed: 10/17/22

Gasoline Range Organics (C6-C10)	52.1	20.0	50.0	ND	104	70-130	3.68	20	
Surrogate: Bromofluorobenzene	0.503		0.500		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.466		0.500		93.1	70-130			
Surrogate: Toluene-d8	0.522		0.500		104	70-130			



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	Reported:
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	10/21/2022 1:18:55PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: JL

Analyte	Result mg/kg	Reporting Limit mg/kg	Spike Level mg/kg	Source Result mg/kg	Rec %	Rec Limits %	RPD %	RPD Limit %	Notes
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Blank (2243076-BLK1)

Prepared: 10/20/22 Analyzed: 10/20/22

Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	51.1		50.0		102	50-200			

LCS (2243076-BS1)

Prepared: 10/20/22 Analyzed: 10/20/22

Diesel Range Organics (C10-C28)	226	25.0	250		90.2	38-132			
Surrogate: n-Nonane	51.0		50.0		102	50-200			

Matrix Spike (2243076-MS1)

Source: E210072-08

Prepared: 10/20/22 Analyzed: 10/20/22

Diesel Range Organics (C10-C28)	226	25.0	250	ND	90.4	38-132			
Surrogate: n-Nonane	51.2		50.0		102	50-200			

Matrix Spike Dup (2243076-MSD1)

Source: E210072-08

Prepared: 10/20/22 Analyzed: 10/20/22

Diesel Range Organics (C10-C28)	238	25.0	250	ND	95.2	38-132	5.15	20	
Surrogate: n-Nonane	52.3		50.0		105	50-200			



QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	Reported:
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	10/21/2022 1:18:55PM

Anions by EPA 300.0/9056A

Analyst: RAS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	

Blank (2243091-BLK1)					Prepared: 10/20/22 Analyzed: 10/20/22				
Chloride	ND	20.0							
LCS (2243091-BS1)					Prepared: 10/20/22 Analyzed: 10/20/22				
Chloride	255	20.0	250		102	90-110			
Matrix Spike (2243091-MS1)					Source: E210110-01		Prepared: 10/20/22 Analyzed: 10/21/22		
Chloride	833	200	250	682	60.3	80-120			M2
Matrix Spike Dup (2243091-MSD1)					Source: E210110-01		Prepared: 10/20/22 Analyzed: 10/21/22		
Chloride	775	200	250	682	37.3	80-120	7.14	20	M2

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures.
Therefore, hand calculated values may differ slightly.



Definitions and Notes

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	
PO Box 247	Project Number:	21064-0001	Reported:
Plains TX, 79355-0247	Project Manager:	Tom Bynum	10/21/22 13:18

- M2 Matrix spike recovery was outside quality control limits. The associated LCS spike recovery was acceptable.
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- RPD Relative Percent Difference
- DNI Did Not Ignite

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.



Chain of Custody



Envirotech Analytical Laboratory

Printed: 10/17/2022 8:48:05AM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.

If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Pima Environmental Services-Carlsbad	Date Received:	10/15/22 11:40	Work Order ID:	E210081
Phone:	(575) 631-6977	Date Logged In:	10/15/22 11:46	Logged In By:	Caitlin Christian
Email:	tom@pimaoil.com	Due Date:	10/21/22 17:00 (4 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC? Yes
2. Does the number of samples per sampling site location match the COC? Yes
3. Were samples dropped off by client or carrier? Yes
4. Was the COC complete, i.e., signatures, dates/times, requested analyses? Yes
5. Were all samples received within holding time? Yes

Note: Analysis, such as pH which should be conducted in the field, i.e., 15 minute hold time, are not included in this discussion.

Carrier: UPSComments/ResolutionSample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT? Yes

Sample Cooler

7. Was a sample cooler received? Yes
8. If yes, was cooler received in good condition? Yes
9. Was the sample(s) received intact, i.e., not broken? Yes
10. Were custody/security seals present? No
11. If yes, were custody/security seals intact? NA
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Yes

Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling

13. If no visible ice, record the temperature. Actual sample temperature: 4°C

Sample Container

14. Are aqueous VOC samples present? No
15. Are VOC samples collected in VOA Vials? NA
16. Is the head space less than 6-8 mm (pea sized or less)? NA
17. Was a trip blank (TB) included for VOC analyses? NA
18. Are non-VOC samples collected in the correct containers? Yes
19. Is the appropriate volume/weight or number of sample containers collected? Yes

Field Label

20. Were field sample labels filled out with the minimum information:
 - Sample ID? Yes
 - Date/Time Collected? Yes
 - Collectors name? No

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved? No
22. Are sample(s) correctly preserved? NA
24. Is lab filtration required and/or requested for dissolved metals? No

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase? No
27. If yes, does the COC specify which phase(s) is to be analyzed? NA

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory? No
29. Was a subcontract laboratory specified by the client and if so who? NA Subcontract Lab: na

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date



envirotech Inc.

District I

1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II

811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 154474

CONDITIONS

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 154474
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
bhall	Site will need to meet the requirements of 19.15.29.13 NMAC when the area of the tank battery is no longer being used for oil and gas operations or at time of plugging and abandonment, whichever comes first.	2/13/2023