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

Attachments

Figures:
1- Location Map
2- Topographic Map
3- Karst Map
4- Site Map (09/08/2022, 01/09/2024, 04/25/2024)
5- Confirmation Map (10/14/2022)
6- Confirmation Map (01/09/2024)

Appendices:
Appendix A – Referenced Water Surveys
Appendix B – Soil Survey and Geological Data
Appendix C – 48-Hour Notification
Appendix D – Photographic Documentation
Appendix E – Laboratory Reports and Field Screen Results

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

May 7, 2024

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. nGRL0902751331

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 October 28th, 2022 (Appendix C). This incident was assigned Incident ID nGRL0902751331, 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).

Based on the well water data from the New Mexico Office of the State Engineer, the depth to the nearest groundwater in this vicinity (L 14587 POD 1) measures 85 feet below grade surface (BGS), positioned roughly 0.35 miles away from the Big Bertha, drilled on November 23rd, 2019. Conversely, as per the United States Geological Survey well water data, the nearest groundwater depth (USGS 32564210319701) in this region is recorded at 69 feet BGS, situated approximately 0.67 miles away from the Big Bertha, with the last gauge conducted on January 15, 1962. For detailed references to water surveys and the precise locations of water wells, please refer to Appendix A, inclusive of the relevant maps. Notably, the Big Betha is situated within an area with a low potential for karst, as illustrated in Figure 3. Additionally, a comprehensive Topographic Map is available for reference in Figure 2.

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'(L 14587 POD 1)	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

nGRL0902751331: On March 31, 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. Approximately 120 barrels of produced water were discharged into the lined containment, and about 110 barrels were successfully recovered. The remaining 10 barrels were retrieved as part of the remediation processes.

Site Assessment and Soil Sampling Results

On September 8, 2022, Pima Environmental deployed personnel to the site to evaluate the affected area situated within the lined containment and the adjacent areas. Given the unidentified nature of the release, Pima conducted sampling across the zone from the release point and collected samples around the containment to ascertain the potential presence of residual contamination. A total of eight sample points (S1-S8) were gathered at depths of 1 and 2 feet to establish vertical delineation. Similarly, soil samples (SW1-SW4) were obtained at a superficial depth as well as one foot below ground surface (bgs.) to establish horizontal delineation. As OSE POD (L 14587 POD1) was detected within half a mile and no older than 25 years, only the section surrounding soil sample S-7 necessitated additional remediation. The results from the laboratory analysis for this sampling event are outlined in the following data table, while a detailed laboratory report can be accessed in Appendix E.

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

Following a prior rejection of this report, it was determined that additional delineation samples were necessary. On January 9th, 2024, subsequent to submitting a 48-hour sampling notification, Pima Environmental replicated the areas previously sampled and obtained a total of 14 additional soil samples for field screening analysis. Chloride levels in all soil samples were examined using a titration method, while hydrocarbons were assessed through the utilization of a PID (Photoionization detector). Comprehensive information on soil samples, depths, and field screening results is available in the ensuing data table. Appendix E contains the hard copy of our technicians' field screen document.

1-9-24 Soil Field Sample Results

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is 50'-100')			
ARMSTRONG ENERGY - BIG BERTHA #001			
Sample Date: 1/9/24		Field Screen Results	
Sample ID	Depth (BGS)	Titration (PPM)	PID (PPM)
S-1	4'	12	0
S-2	4'	0	0
S-3	4'	56	0
S-4	4'	0	0
S-5	4'	0	0
S-6	4'	0	0
S-7	4'	0	0
S-8	4'	0	0
SW 1	1'	0	0
SW 2	1'	0	0
SW 3	1'	0	0
SW 4	1'	0	0
BG 1	1'	0	0
BG 2	1'	0	0

Furthermore, on April 25, 2024, after a 48-hour sampling notice, Pima Environmental gathered extra horizontal delineation points for soil samples S4, S6, and S8 as per the request of NMOCD. These supplementary horizontal delineation samples were acquired to fulfill the criteria specified in 19.15.29.11 NMAC. The results of the laboratory analysis for this sampling event are detailed in the subsequent data table, with a comprehensive laboratory report available in Appendix E.

4-25-24 Soil Field Sample Results

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is 50-100 ')								
ARMSTRONG ENERGY- BIG BERTHA #001								
4/25/2024		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
S8-Del	1'	ND	ND	ND	ND	ND	ND	ND
S4-Del	1'	ND	ND	ND	ND	ND	ND	ND
S6-Del	1'	ND	ND	ND	ND	ND	ND	ND

ND: Non-Detect

After conducting additional horizontal and vertical delineation samples, it has been established that all soil samples are below the NMOCD closure criteria. They meet the reclamation standard 19.15.29.13 NMAC or the OCD-approved background values for the upper 4 feet of the impacted area. The total sampled area showing levels exceeding the reclamation standard measured roughly 2,000 square feet. We respectfully request a variance in the sampling protocol, transitioning from 200 square feet to 400 square feet. Under this revised protocol, soil samples S8, S7, S6, S5, and S4 collectively represent one sample per every 400 square feet of the surrounding area. The locations of all soil samples collected on September 8, 2022, January 9, 2024, and April 25, 2024, are depicted in the Site Map provided in Figure 4.

Remediation Activities

On October 12, 2022, Pima deployed personnel and equipment to initiate remedial activities. The targeted zone, including soil sample location S-7, was excavated to a depth of two feet below ground surface (Bgs) using a skid steer. The excavated area encompasses approximately 392 square feet. All contaminated soil was thoroughly extracted and subsequently transported to a landfill approved by the NMOCD for proper disposal. Detailed photographic documentation is available in Appendix D.

On October 14, 2022, subsequent to the submission of the 48-hour notification (refer to Appendix C), Pima proceeded with the collection of confirmation samples. These samples encompassed one bottom sample (CS1) and four side wall samples (CSW1-CSW4), gathered from the bottom of the excavation to the surface to ensure a thorough sampling of the side walls. Each confirmation sample constituted a five-point composite sample, complying with the 200 square foot rule outlined by the NMOCD. The detailed

laboratory results for this sampling event are included in the accompanying data table. Furthermore, a site map illustrating this confirmation sampling event is available in Figure 5.

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

Once it was confirmed that all contaminated soil had been removed, clean material was brought in and used to backfill the affected area, restoring it to its original contour.

In response to a prior rejection of this report, further confirmation samples were gathered to conclusively ensure the absence of any remaining contamination in the previously excavated area. On January 9th, 2024, following the submission of a 48-hour sampling notification, Pima Environmental collected two bottom composite samples. Each sample comprised a 5-point composite of the bottom section previously excavated. Additionally, four composite side wall samples were collected, spanning the full depth of the excavation from the bottom to the surface, ensuring comprehensive sampling of the side walls. The comprehensive laboratory results for this sampling event are presented in the accompanying data table. Additionally, a detailed confirmation site map can be referenced in Figure 6. Complete laboratory reports can be found in Appendix E.

01-09-2024 Confirmation Soil Sample Results

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is 50-100 ')								
ARMSTRONG ENERGY- BIG BERTHA #001								
1/9/2024		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
CS1	2'	ND	ND	ND	ND	ND	0	ND
CS2	2'	ND	ND	ND	ND	ND	0	ND
CSW1	(0-2')	ND	ND	ND	ND	ND	0	ND
CSW2	(0-2')	ND	ND	ND	ND	ND	0	ND
CSW3	(0-2')	ND	ND	ND	ND	ND	0	ND
CSW4	(0-2')	ND	ND	ND	ND	ND	0	ND

ND- Analyte Not Detected

Closure Request

After careful review, Pima requests that this incident, nGRL0902751331, 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

Pima Environmental Services

Figures:

1-Location Map

2-Topo Map

3-Karst Map

4- Site Map (09/08/2022, 01/09/2024, 04/25/2024

5-Confirmation Sample Map (10/04/2022)

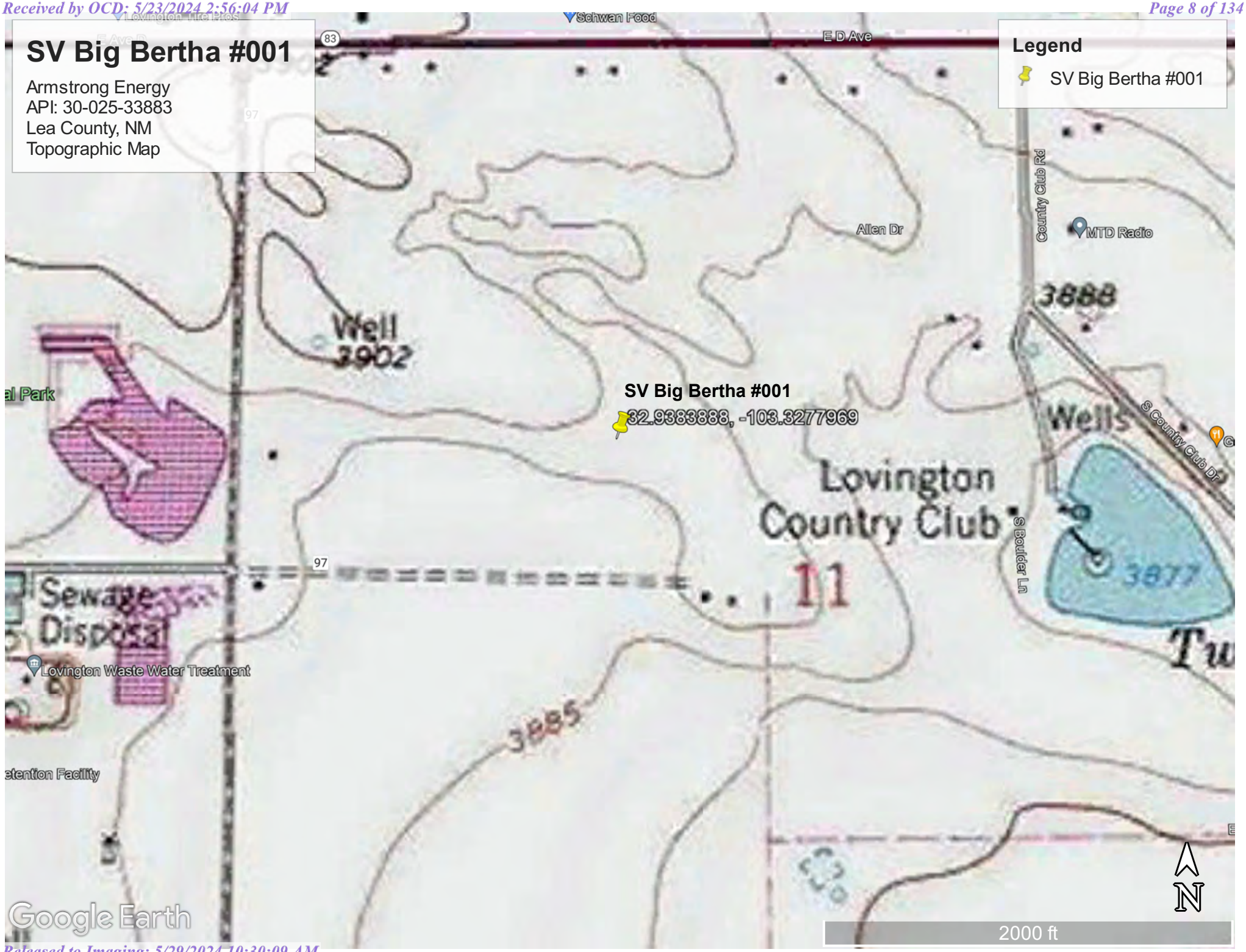
6- Confirmation Sample Map (01/09/2024)

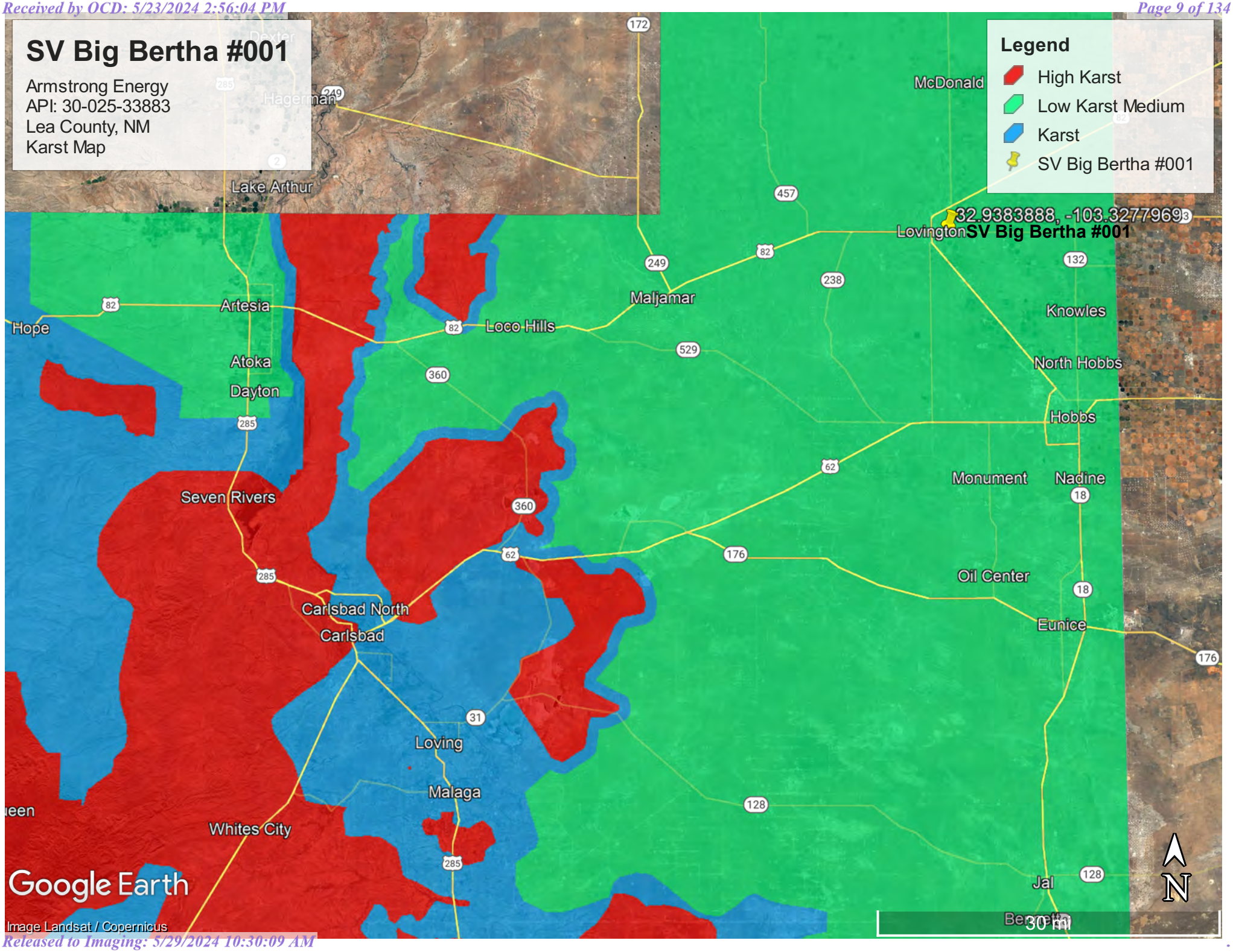
SV Big Bertha #001

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

SV Big Bertha #001

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



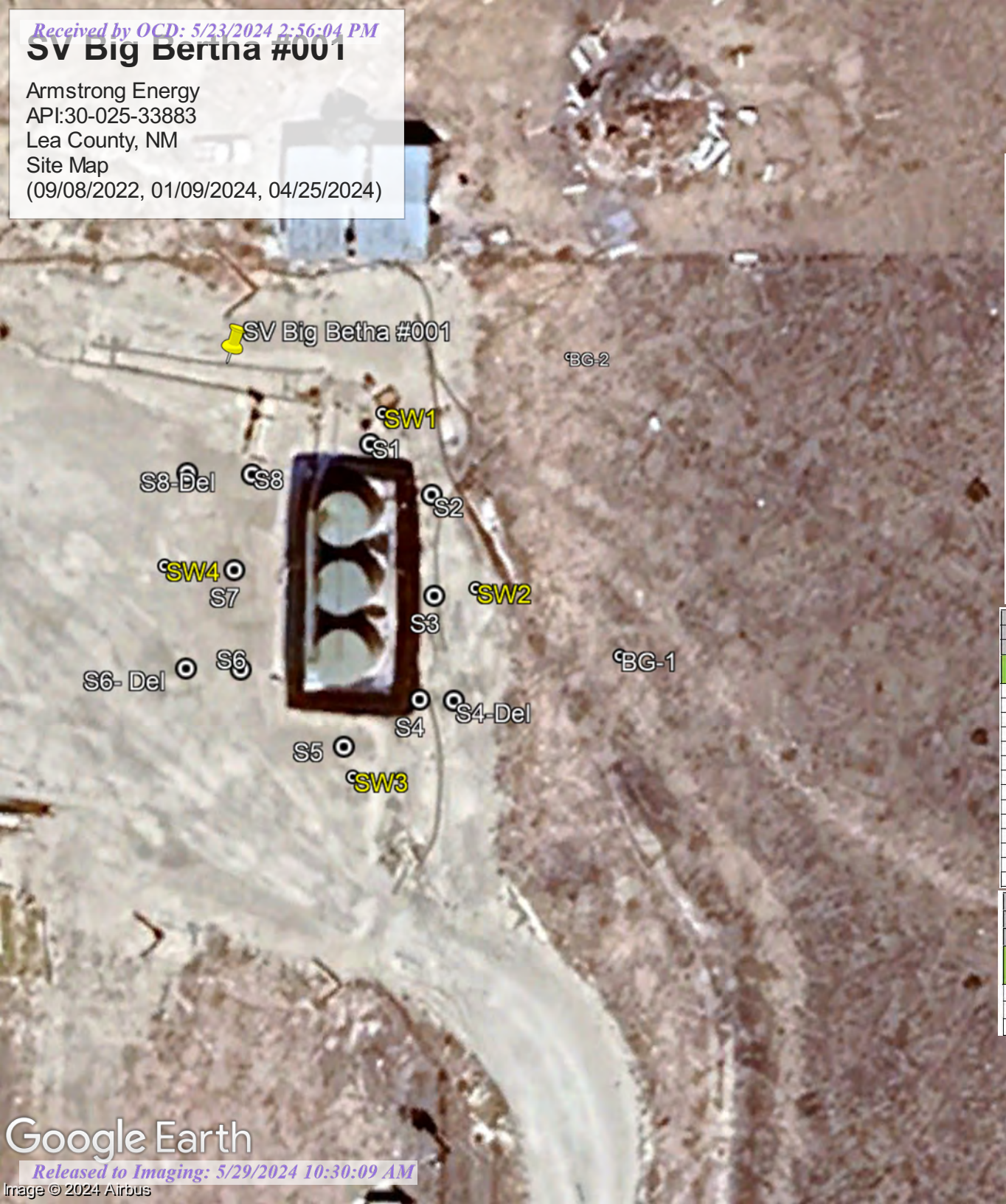

SV Big Bertha #001
Armstrong Energy
API: 30-025-33883
Lea County, NM
Karst Map
Legend
High Karst
Low Karst Medium
Karst
SV Big Bertha #001
32.9383888, -103.3277969
SV Big Bertha #001
Lovington
McDonald
Lake Arthur
Hagerman
Artesia
Hope
Loco Hills
Maljamar
Atoka
Dayton
Seven Rivers
Carlsbad North
Carlsbad
Loving
Malaga
Whites City
Knowles
North Hobbs
Hobbs
Monument
Nadine
Oil Center
Eunice
Jal
Google Earth
Image Landsat / Copernicus
30 mi
N

SV Big Bertha #001

Armstrong Energy
API:30-025-33883
Lea County, NM
Site Map
(09/08/2022, 01/09/2024, 04/25/2024)

Legend

- Soil Sample
- SV Big Bertha #001



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

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is 50'-100')			
ARMSTRONG ENERGY - BIG BERTHA #001			
Sample Date: 1/9/24		Field Screen Results	
Sample ID	Depth (BGS)	Titration (PPM)	PID (PPM)
S-1	4'	12	0
S-2	4'	0	0
S-3	4'	56	0
S-4	4'	0	0
S-5	4'	0	0
S-6	4'	0	0
S-7	4'	0	0
S-8	4'	0	0
SW 1	1'	0	0
SW 2	1'	0	0
SW 3	1'	0	0
SW 4	1'	0	0
BG 1	1'	0	0
BG 2	1'	0	0

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is 50-100 ')								
ARMSTRONG ENERGY- BIG BERTHA #001								
4/25/2024		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
S8-Del	1'	ND	ND	ND	ND	ND	ND	ND
S4-Del	1'	ND	ND	ND	ND	ND	ND	ND
S6-Del	1'	ND	ND	ND	ND	ND	ND	ND

N

100 ft

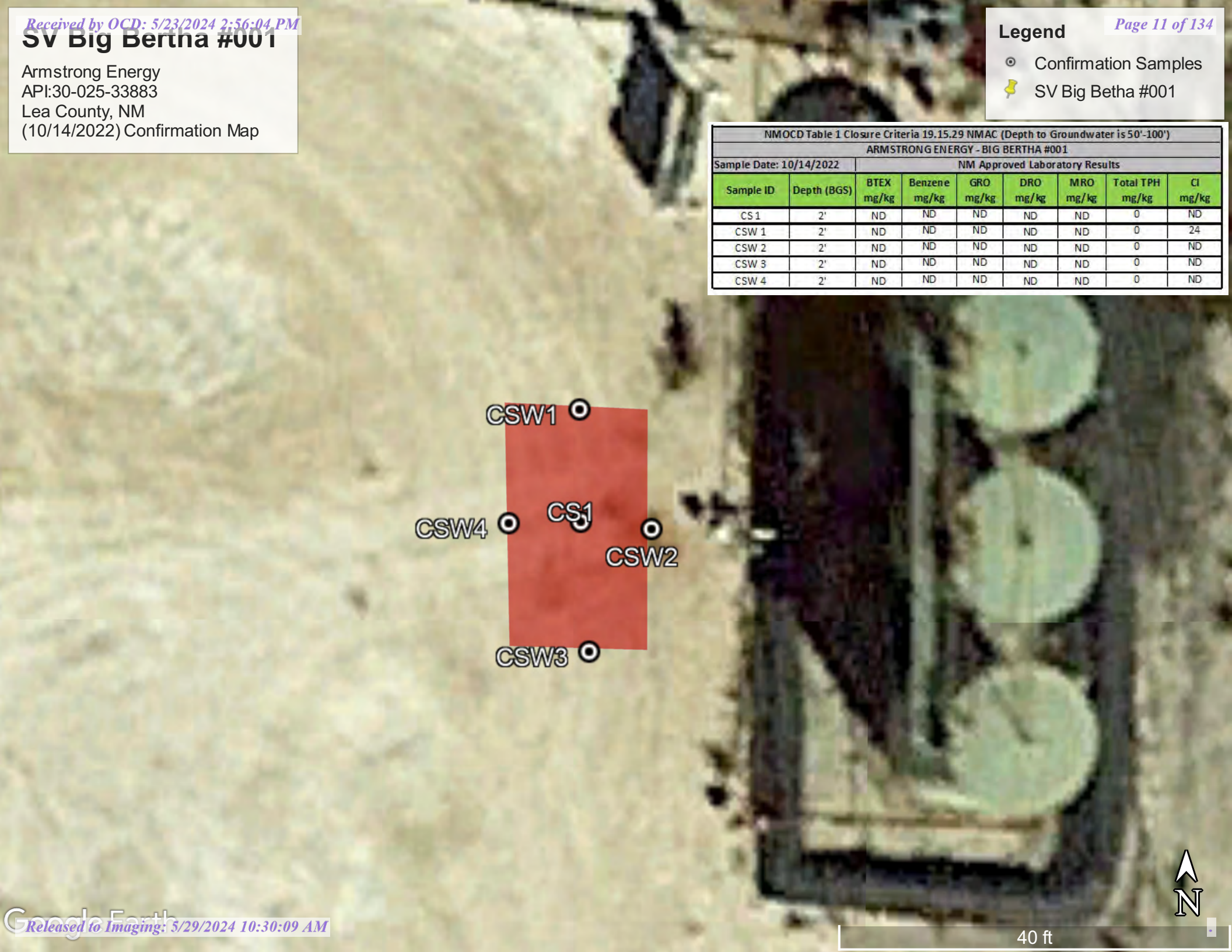
SV Big Bertha #001

Armstrong Energy
API:30-025-33883
Lea County, NM
(10/14/2022) Confirmation Map

Legend

- Confirmation Samples
- SV Big Betha #001

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



SV Big Bertha #001

Armstrong Energy
API:30-025-33883
Lea County, NM
(01/09/2024) Confirmation Map

Legend

- Confirmation Samples
- Excavated Area
- SV Big Bertha #001

NMOCD Table 1 Closure Criteria 19.15.29 NMAC (Depth to Groundwater is 50-100 ')								
ARMSTRONG ENERGY- BIG BERTHA #001								
1/9/2024		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
CS1	2'	ND	ND	ND	ND	ND	0	ND
CS2	2'	ND	ND	ND	ND	ND	0	ND
CSW1	(0-2')	ND	ND	ND	ND	ND	0	ND
CSW2	(0-2')	ND	ND	ND	ND	ND	0	ND
CSW3	(0-2')	ND	ND	ND	ND	ND	0	ND
CSW4	(0-2')	ND	ND	ND	ND	ND	0	ND

N

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	Depth Well	Depth Water	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

UTMNAD83 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

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

Water Bearing Stratifications:	Top	Bottom	Description
	45	165	Limestone/Dolomite/Chalk

Casing Perforations:	Top	Bottom
	125	165


SV Big Bertha #001
Armstrong Energy Partners
API:30-025-33883
Lea County,NM
OSE POD location
Legend
0.36 Miles
SV Big Bertha #001
L 14587 POD 1
E D Ave
83
97
Country Club Rd
Allen Dr
L 14587 POD 1
SV BIG BERTHA
S Country Club Dr
S Boulder Ln
97
Google Earth
2000 ft
N

National Water Information System: Web Interface

USGS Water Resources

Data Category: Groundwater | Geographic Area: United States | GO

Click to hideNews Bulletins

- Explore the *NEW* USGS National Water Dashboard interactive map to access real-time water data from over 13,500 stations nationwide.
- Full News

Groundwater levels for the Nation

Important: Next Generation Monitoring Location Page

Search Results -- 1 sites found

site_no list =

- 325642103191701

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

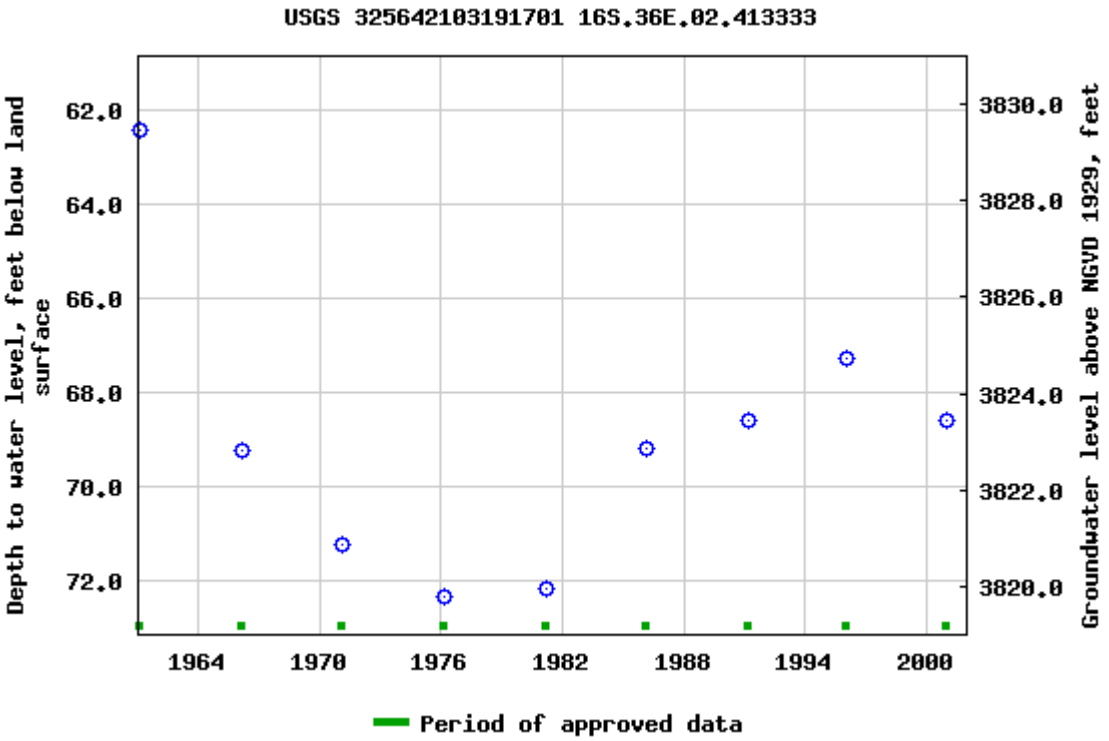
USGS 325642103191701 16S.36E.02.413333

Available data for this site | Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 12080003
Latitude 32°56'52", Longitude 103°19'31" NAD27
Land-surface elevation 3,892.00 feet above NGVD29
The depth of the well is 110 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.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

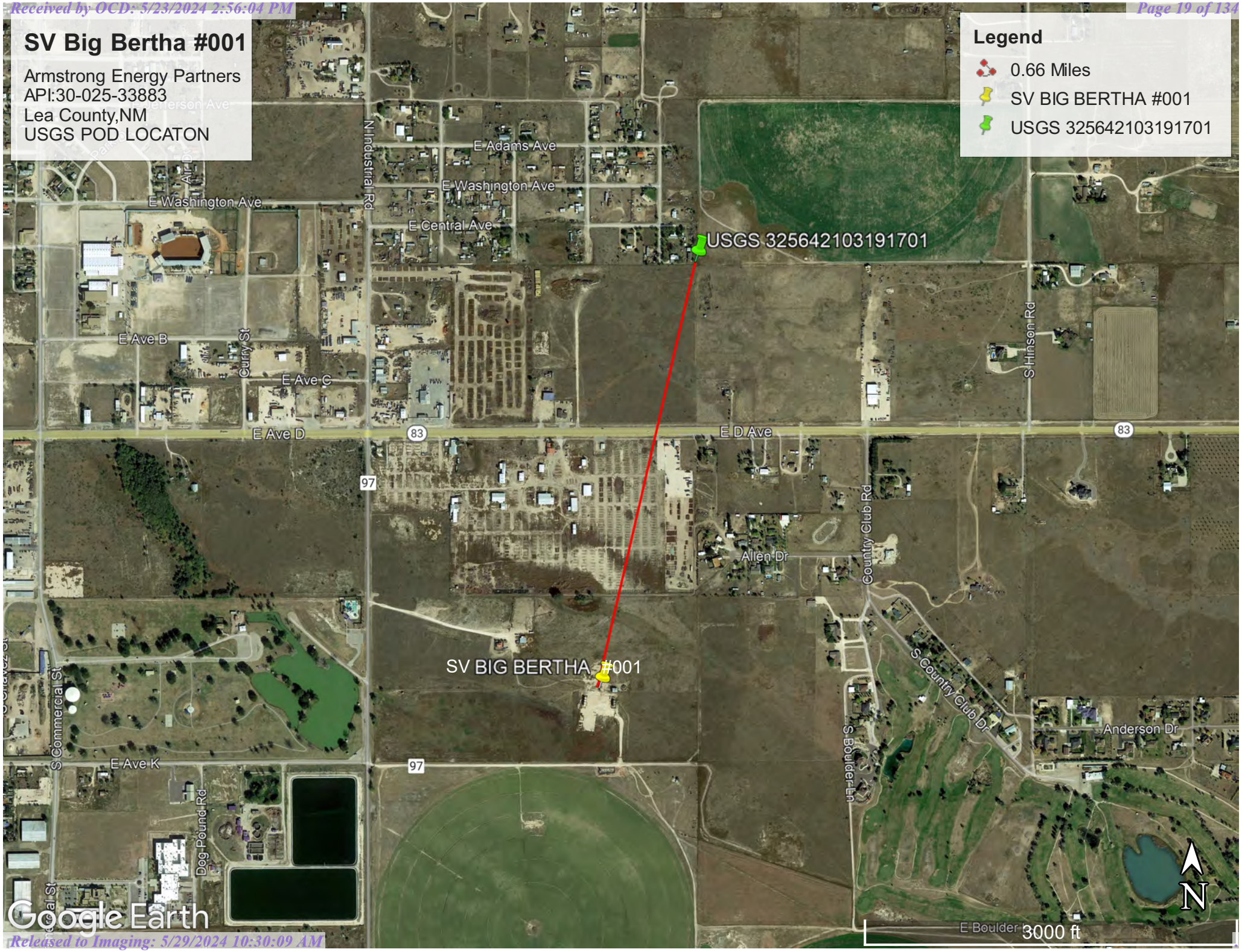
Questions or Comments
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

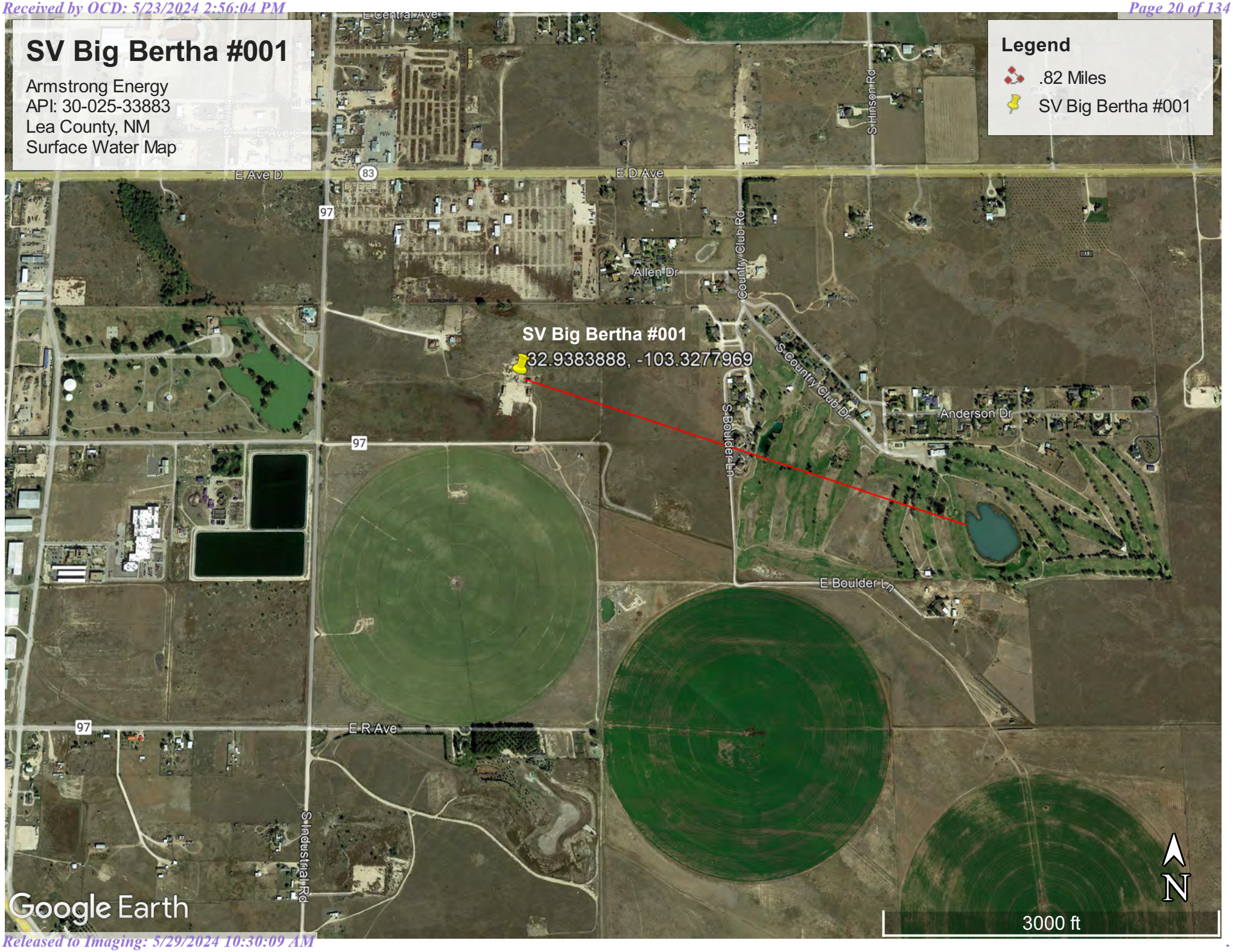
SV Big Bertha #001

Armstrong Energy Partners
API:30-025-33883
Lea County,NM
USGS POD LOCATON

Legend

- 0.66 Miles
- SV BIG BERTHA #001
- USGS 325642103191701




SV Big Bertha #001
Armstrong Energy
API: 30-025-33883
Lea County, NM
Surface Water Map
Legend
.82 Miles
SV Big Bertha #001
SV Big Bertha #001
32.9383888, -103.3277969
E Central Ave
E Ave D
E D Ave
E R Ave
S Hinson Rd
Country Club Rd
S Country Club Dr
Allen Dr
S Boulder Ln
E Boulder Ln
Anderson Dr
S Industrial Rd
83
97
Google Earth
N
3000 ft

Pima Environmental Services

Appendix B

Soil Survey & Geological Data

FEMA Flood Map

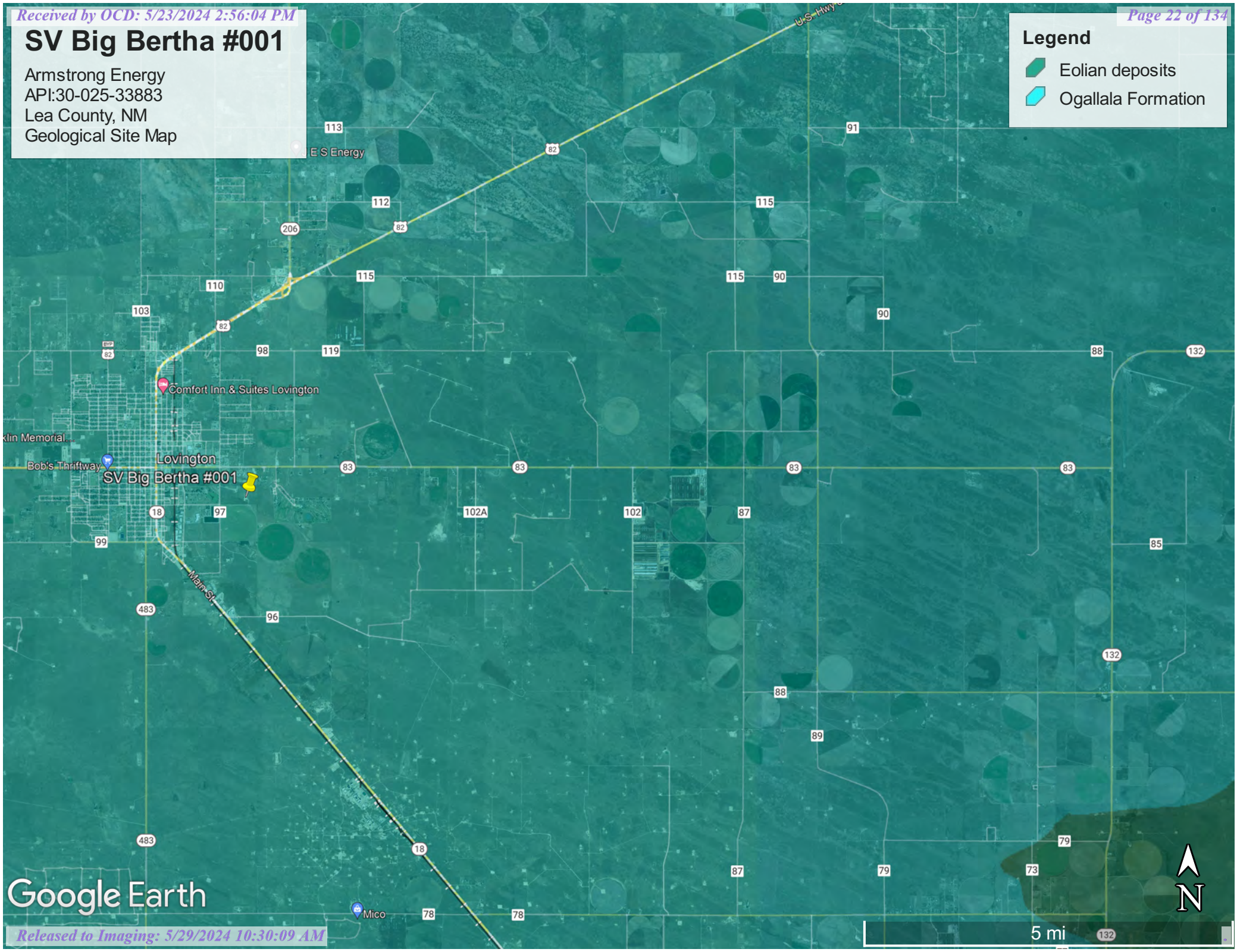
Wetlands Map

SV Big Bertha #001

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

Legend

- Eolian deposits
- Ogallala Formation



(https://www.usgs.gov/)

Mineral Resources (https://www.usgs.gov/energy-and-minerals/mineral-resources-program) / Online Spatial Data (/) / Geology (/geology/) / by state (/geology/state/) / New Mexico (/geology/state/state.php?state=NM)

Ogallala Formation

XML (/geology/state/xml/NMTo;0) | JSON (/geology/state/json/NMTo;0)

Shapefile (/geology/state/unit-shape.php?unit=NMTo;0)

Alluvial and eolian deposits, and petrocalcic soils of the southern High Plains. Locally includes Qoa.

State	New Mexico (/geology/state/state.php?state=NM)
Name	Ogallala Formation
Geologic age	Lower Pliocene to middle Miocene
Lithologic constituents	Major Unconsolidated > Coarse-detrital > Sand *(Alluvial, Eolian)* *GEOLEX* Minor Sedimentary > Carbonate *(Calcareous)* *petrocalcic soils of the southern High Plains; marl*
References	Green, G.N., Jones, G.E., and Anderson, O.J., 1997, The Digital Geologic Map of New Mexico in ARC/INFO Format: U.S. Geological Survey Open-File Report 97-0052, 9 p., scale 1:500,000. https://pubs.er.usgs.gov/publication/ofr9752 (https://pubs.er.usgs.gov/publication/ofr9752) USGS Geologic Names lexicon found at: http://ngmdb.usgs.gov/Geolex/ https://ngmdb.usgs.gov/Geolex/search (https://ngmdb.usgs.gov/Geolex/search)
NGMDB product	NGMDB product page for 22974 (https://ngmdb.usgs.gov/Prodesc/proddesc_22974.htm)

Counties	Chaves (/geology/state/fips-unit.php?code=f35005) - Colfax (/geology/state/fips-unit.php?code=f35007) - Curry (/geology/state/fips-unit.php?code=f35009) - DeBaca (/geology/state/fips-unit.php?code=f35011) - Eddy (/geology/state/fips-unit.php?code=f35015) - Guadalupe (/geology/state/fips-unit.php?code=f35019) - Harding (/geology/state/fips-unit.php?code=f35021) - Lea (/geology/state/fips-unit.php?code=f35025) - Lincoln (/geology/state/fips-unit.php?code=f35027) - Mora (/geology/state/fips-unit.php?code=f35033) - Quay (/geology/state/fips-unit.php?code=f35037) - Roosevelt (/geology/state/fips-unit.php?code=f35041) - San Miguel (/geology/state/fips-unit.php?code=f35047) - Torrance (/geology/state/fips-unit.php?code=f35057) - Union (/geology/state/fips-unit.php?code=f35059)

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

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

FEMA

103°19'59"W 32°56'33"N

103°19'21"W 32°56'3"N

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

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

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
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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.

U.S. Fish and Wildlife Service
National Wetlands Inventory

SV Big Bertha #01

January 26, 2024

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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Pima Environmental Services

Appendix C

48-Hour Notification

Gmail

Gio PimaOil <gio@pimaoil.com>

Liner Inspection SV Big Bertha 1 -NGRL0902751331

1 message

Gio PimaOil <gio@pimaoil.com> Mon, Sep 12, 2022 at 3:47 PM
To: ocdonline@state.nm.us, Tom Pima Oil <tom@pimaoil.com>, 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 **NGRL0902751331**. 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.

Sebastian@pimaoil.com

From: jtew <jtew@aecnm.com>
Sent: Thursday, January 4, 2024 11:20 AM
To: sebastian@pimaoil.com
Subject: Fw: The Oil Conservation Division (OCD) has accepted the application, Application ID: 299928

See below

Jeffery G. Tew
Operations Engineer
Armstrong Energy Corporation
PO BOX 1973
Roswell, NM 88202
575-623-2999 x 327 (Office)
575-420-7600 (Cell)

From: OCDOnline@state.nm.us <OCDOnline@state.nm.us>
Sent: Thursday, January 4, 2024 11:19 AM
To: jtew <jtew@aecnm.com>
Subject: The Oil Conservation Division (OCD) has accepted the application, Application ID: 299928

To whom it may concern (c/o Jeffery Tew for ARMSTRONG ENERGY CORP),
The OCD has received the submitted *Notification for (Final) Sampling of a Release* (C-141N), for incident ID (n#) nPRS0505531372.

The sampling event is expected to take place:

When: 01/09/2024 @ 09:00
Where: G-12-16S-36E 2144 FNL 2087 FEL (32.9383049,-103.306366)

Additional Information: Sebastian Orozco 619-721-4813 cell

Additional Instructions: The State 3 #001 is located approximately two and a half (2.5) miles east of Lovington, NM. This spill site is in Unit D, Section 12,
Township 16S, Range 36E, Latitude 32.9383049, Longitude -103.306366, Lea County, NM.

An OCD representative may be available onsite at the date and time reported. In the absence or presence of an OCD representative, sampling pursuant to 19.15.29.12.D NMAC is required. Sampling must be performed following an approved sampling plan or pursuant to 19.15.29.12.D.(1).(c) NMAC. Should there be a change in the scheduled date and time of the sampling event, then another notification should be resubmitted through OCD permitting as soon as possible.

- **Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.**

If you have any questions regarding this application, or don't know why you have received this email, please contact us.
New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

OCD Permitting

[NOTIFY] Notification Of Sampling (C-141N) Application

Submission Information

Submission ID:	299924	**Districts:**	Hobbs
Operator:	[1092] ARMSTRONG ENERGY CORP	**Counties:**	Lea
Description:	ARMSTRONG ENERGY CORP [1092] , SV BIG BERTHA #001 , nGRL0902751331		
Status:	APPROVED		
Status Date:	01/04/2024		
References (2):	30-025-33883, nGRL0902751331		

Forms

This application type does not have attachments.

Questions

Prerequisites

Incident ID (n#)	**nGRL0902751331**
Incident Name	**NGRL0902751331 SV BIG BERTHA #001 @ 30-025-33883**
Incident Type	**Produced Water Release**
Incident Status	**Initial C-141 Approved**
Incident Well	**[30-025-33883] SV BIG BERTHA #001**

Location of Release Source

Site Name	**SV BIG BERTHA #001**
Date Release Discovered	**01/20/2009**
Surface Owner	**Private**

Sampling Event General Information

Please answer all the questions in this group.

What is the sampling surface area in square feet	400
What is the estimated number of samples that will be gathered	7
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	01/09/2024
Time sampling will commence	07:00 AM
Warning: Notification can not be less than two business days prior to conducting final sampling.	
Please provide any information necessary for observers to contact samplers	Sebastian Orozco 619-721-4813 cell
Please provide any information necessary for navigation to sampling site	The SV Big Bertha #001 is located approximately 1.3 miles east of Lovington, NM. This spill site is in Unit F, Se Township 16S, Range 36E, Latitude 32.9383888, Longitude -103.3277969, Lea County, NM

Comments

No comments found for this submission.

Conditions

Summary: *jtew (1/4/2024),* Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.

Reasons

No reasons found for this submission.

Go Back

OCD Permitting

[NOTIFY] Notification Of Sampling (C-141N) Application

Submission Information

Submission ID:	336535	**Districts:**	Hobbs
Operator:	[1092] ARMSTRONG ENERGY CORP	**Counties:**	Lea
Description:	ARMSTRONG ENERGY CORP [1092] , SV BIG BERTHA #001 , nGRL0902751331		
Status:	APPROVED		
Status Date:	04/23/2024		
References (2):	30-025-33883, nGRL0902751331		

Forms

This application type does not have attachments.

Questions

Prerequisites

Incident ID (n#)	**nGRL0902751331**
Incident Name	**NGRL0902751331 SV BIG BERTHA #001 @ 30-025-33883**
Incident Type	**Produced Water Release**
Incident Status	**Initial C-141 Approved**
Incident Well	**[30-025-33883] SV BIG BERTHA #001**

Location of Release Source

Site Name	**SV BIG BERTHA #001**
Date Release Discovered	**01/20/2009**
Surface Owner	**Private**

Sampling Event General Information

Please answer all the questions in this group.

What is the sampling surface area in square feet	2,000
What is the estimated number of samples that will be gathered	3
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	04/25/2024
Time sampling will commence	11:00 AM
Warning: Notification can not be less than two business days prior to conducting final sampling.	
Please provide any information necessary for observers to contact samplers	Sebastian Orozco 619-721-4813 cell
Please provide any information necessary for navigation to sampling site	The SV Big Bertha #001 is located approximately 1.3 miles east of Lovington, NM. This spill site is in Unit F, Se Township 16S, Range 36E, Latitude 32.9383888, Longitude -103.3277969, Lea County, NM

Comments

No comments found for this submission.

Conditions

Summary: *jtew (4/23/2024).* Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.

Reasons

No reasons found for this submission.

Go Back

Pima Environmental Services

Appendix D

Photographic Documentation

SITE PHOTOGRAPHS


+32.938119,-103.327585
178° S
Remediation
Armstrong: Big Bertha


+32.937976,-103.327554
355° N
Post remediation
Armstrong: Big Bertha

Pima Environmental Services

Appendix E

Laboratory Reports

Field Screen Results

Report to:

Tom Bynum

5796 U.S. Hwy 64
Farmington, NM 87401

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

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

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 reguarding 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
ljarboe@envirotech-inc.com

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

Envirotech Web Address: www.envirotech-inc.com

Table of Contents

Table of Contents (continued)

Sample Summary

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	09/20/22 16:49

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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Project Name:	Big Bertha #1-11	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	
Surrogate: 4-Bromochlorobenzene-PID		*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	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*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	
Surrogate: n-Nonane		*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	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
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	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
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:**
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: RKS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
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	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
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	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
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: n-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: n-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: n-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: n-Nonane	*51.3*		*50.0*		*103*	*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

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: JL

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
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: Pima Environmental Services	Bill To
Project: Big Bertha #1-11	Attention: Armstrong Energy
Project Manager: Tom Bynum	Address:
Address: 5614 N. Lovington Hwy.	City, State, Zip
City, State, Zip Hobbs, NM, 88240	Phone:
Phone: 580-748-1613	Email:
Email: tom@pimaoil.com	Pima Project # 19.16
Report due by:	

Lab Use Only: Lab WO# E209060022093 | Job Number 1D 2D 3D Standard X

TAT: 1D | 2D | 3D | Standard X

EPA Program: CWA | SDWA | RCRA

State: NM X | CO | UT | AZ | TX

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/ORO 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 bill to Pima! sebastian@pimaoil.com

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

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Alexandra Sanders	9/13/22	2:30		9-13-22	3:15
	9-13-22	4:15		9/14/22	11:00

Lab Use Only — Received on ice: (Y) N

T1 ____ T2 ____ T3 ____

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.

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Project Information | Chain of Custody | Page 2 of 3

Client: Pima Environmental Services	Bill To
Project: Big Bertha # 1-11	Attention: Armstrong Energy
Project Manager: Tom Bynum	Address:
Address: 5614 N. Lovington Hwy.	City, State, Zip
City, State, Zip Hobbs, NM, 88240	Phone:
Phone: 580-748-1613	Email:
Email: tom@pimaoil.com	Pima Project # 19-16
Report due by:	

Lab Use Only: Lab WO# E209060 | Job Number 22093.0001

TAT: 1D | 2D | 3D | Standard (X)

EPA Program: CWA | SDWA | RCRA

State: NM (X) | CO | UT | AZ | TX

Analysis and Method: DRO/ORO by 8015 | GRO/DRO by 8015 | BTEX by 8021 | VOC by 8260 | Metals 6010 | Chloride 300.0 | BGDOC NM | BGDOC TX

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	BGDOC NM	Remarks
8:50	9/8/22	S	1	S.16 1'	11	X	
8:55	"	"	"	S.16 2'	12	"	
9:00	"	"	"	S.7 1'	13	"	
9:05	"	"	"	S.7 2'	14	"	
9:10	"	"	"	S.8 1'	15	"	
9:15	"	"	"	S.8 2'	16	"	
9:20	"	"	"	SW1	17	"	
9:25	"	"	"	SW2	18	"	
9:30	"	"	"	SW3	19	"	
9:35	"	"	"	SW4	20	"	

Additional Instructions: If Not bill to Pima — sebastian@pimaoil.com

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

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Andriana Benavides	9/13/22	2:30		9-13-22	4:01
	9-13-22	2112		9/14/22	11:00

Lab Use Only — Received on ice: (Y) N

T1 ____ T2 ____ T3 ____

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.

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Project Information | Chain of Custody | Page 3 of 3

Client: Pima Environmental Services	Bill To
Project: Big Bertha # 1-11	Attention: Armstrong Energy
Project Manager: Tom Bynum	Address:
Address: 5614 N. Lovington Hwy.	City, State, Zip
City, State, Zip Hobbs, NM. 88240	Phone:
Phone: 580-748-1613	Email:
Email: tom@pimaoil.com	Pima Project # 19-16
Report due by:	

Lab Use Only

Lab WO#: E209010022093-0001 | Job Number:

TAT: 1D | 2D | 3D | Standard: X

EPA Program: CWA | SDWA | RCRA

State: NM: X | CO | UT | AZ | TX

Analysis and Method

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	BGDOC NM	BGDOC TX	Remarks
9:40	9/8/22	S	1	BG 1	21							X		
9:45	1	1	1	BG 2	22							1		

Additional Instructions: if NOT Bill to Pima, SEBASTIAN@PIMAOIL.COM

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

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Alexandra Sanders	9/13/22	2:30		9-13-22	3:0
	9-13-22	4:15		9/14/22	11:00

Lab Use Only

Received on ice: (Y) N

T1 ____ T2 ____ T3 ____

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.

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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	Carrier: UPS
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	Yes	
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes	

Comments/Resolution

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

5796 U.S. Hwy 64
Farmington, NM 87401

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

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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

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 reguarding 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
ljarboe@envirotech-inc.com

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

Envirotech Web Address: www.envirotech-inc.com

Table of Contents

Sample Summary

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	10/21/22 13:18

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	Project Name:	SV Big Bertha #001	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	Project Name:	SV Big Bertha #001	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	Project Name:	SV Big Bertha #001	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	Project Name:	SV Big Bertha #001	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	Project Name:	SV Big Bertha #001	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	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	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
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	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
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	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
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.

Project Information | Chain of Custody | Page 1 of 1

Client: Pima Environmental Services	
Project: SV Big Bertha #001	
Project Manager: Tom Bynum	
Address: 5614 N. Lovington Hwy.	
City, State, Zip Hobbs, NM. 88240	
Phone: 580-748-1613	
Email: tom@pimaoil.com	
Report due by:	

Bill To

Attention:	
Address:	
City, State, Zip	
Phone:	
Email:	
Pima Project #	19-6

Lab Use Only

Lab WO#	Job Number
E210081	21064-0001

TAT

1D	2D	3D	Standard
			X

EPA Program

CWA	SDWA	RCRA

State

NM	CO	UT	AZ	TX	
X					

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0			BGDOC NM	BGDOC TX			Remarks
8:00	10/14/22	S	1	CS1	1									X				
8:05				CSW1	2													
8:10				CSW2	3													
8:15				CSW3	4													
8:20				CSW4	5													

Additional Instructions: BILL TO PIMA

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

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	10.14.22	12:00		10/14/22	12:10p
	10/14/22	4:15p		10/15/22	11:40

Lab Use Only

Received on ice: Y / N

T1 T2 T3

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

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	Carrier: UPS
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	Yes	
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes	

Comments/Resolution

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

5796 U.S. Hwy 64
Farmington, NM 87401

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

envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Pima Environmental Services-Carlsbad

Project Name: SV Big Bertha

Work Order: E401062

Job Number: 21064-0001

Received: 1/12/2024

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
1/18/24

Date Reported: 1/18/24

Tom Bynum
PO Box 247
Plains, TX 79355-0247

Project Name: SV Big Bertha
Workorder: E401062
Date Received: 1/12/2024 9:45:00AM

Tom Bynum,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 1/12/2024 9:45:00AM, under the Project Name: SV Big Bertha.

The analytical test results summarized in this report with the Project Name: SV Big Bertha 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 reguarding 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
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Cell: 775-287-1762
whinchman@envirotech-inc.com

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Table of Contents

Sample Summary

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	**Reported:**
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	01/18/24 14:26

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
CS1-2'	E401062-01A	Soil	01/09/24	01/12/24	Glass Jar, 2 oz.
CS2-2'	E401062-02A	Soil	01/09/24	01/12/24	Glass Jar, 2 oz.
CSW1 (0-2')	E401062-03A	Soil	01/09/24	01/12/24	Glass Jar, 2 oz.
CSW2 (0-2')	E401062-04A	Soil	01/09/24	01/12/24	Glass Jar, 2 oz.
CSW3 (0-2')	E401062-05A	Soil	01/09/24	01/12/24	Glass Jar, 2 oz.
CSW4 (0-2')	E401062-06A	Soil	01/09/24	01/12/24	Glass Jar, 2 oz.

Sample Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

CS1-2'

E401062-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Benzene	ND	0.0250	1	01/12/24	01/16/24	
Ethylbenzene	ND	0.0250	1	01/12/24	01/16/24	
Toluene	ND	0.0250	1	01/12/24	01/16/24	
o-Xylene	ND	0.0250	1	01/12/24	01/16/24	
p,m-Xylene	ND	0.0500	1	01/12/24	01/16/24	
Total Xylenes	ND	0.0250	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*120 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*93.6 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*113 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*120 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*93.6 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*113 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM			Batch: 2403002
Diesel Range Organics (C10-C28)	ND	25.0	1	01/15/24	01/17/24	
Oil Range Organics (C28-C36)	ND	50.0	1	01/15/24	01/17/24	
Surrogate: n-Nonane		*114 %*	*50-200*	*01/15/24*	*01/17/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2403010
Chloride	ND	20.0	1	01/15/24	01/15/24	

Sample Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

CS2-2'

E401062-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Benzene	ND	0.0250	1	01/12/24	01/16/24	
Ethylbenzene	ND	0.0250	1	01/12/24	01/16/24	
Toluene	ND	0.0250	1	01/12/24	01/16/24	
o-Xylene	ND	0.0250	1	01/12/24	01/16/24	
p,m-Xylene	ND	0.0500	1	01/12/24	01/16/24	
Total Xylenes	ND	0.0250	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*118 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*96.8 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*112 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*118 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*96.8 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*112 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM			Batch: 2403002
Diesel Range Organics (C10-C28)	ND	25.0	1	01/15/24	01/17/24	
Oil Range Organics (C28-C36)	ND	50.0	1	01/15/24	01/17/24	
Surrogate: n-Nonane		*112 %*	*50-200*	*01/15/24*	*01/17/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2403010
Chloride	ND	20.0	1	01/15/24	01/15/24	

Sample Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

CSW1 (0-2')

E401062-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Benzene	ND	0.0250	1	01/12/24	01/16/24	
Ethylbenzene	ND	0.0250	1	01/12/24	01/16/24	
Toluene	ND	0.0250	1	01/12/24	01/16/24	
o-Xylene	ND	0.0250	1	01/12/24	01/16/24	
p,m-Xylene	ND	0.0500	1	01/12/24	01/16/24	
Total Xylenes	ND	0.0250	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*120 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*94.0 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*110 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*120 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*94.0 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*110 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM			Batch: 2403002
Diesel Range Organics (C10-C28)	ND	25.0	1	01/15/24	01/17/24	
Oil Range Organics (C28-C36)	ND	50.0	1	01/15/24	01/17/24	
Surrogate: n-Nonane		*113 %*	*50-200*	*01/15/24*	*01/17/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2403010
Chloride	ND	20.0	1	01/15/24	01/15/24	

Sample Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

CSW2 (0-2')

E401062-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Benzene	ND	0.0250	1	01/12/24	01/16/24	
Ethylbenzene	ND	0.0250	1	01/12/24	01/16/24	
Toluene	ND	0.0250	1	01/12/24	01/16/24	
o-Xylene	ND	0.0250	1	01/12/24	01/16/24	
p,m-Xylene	ND	0.0500	1	01/12/24	01/16/24	
Total Xylenes	ND	0.0250	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*119 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*93.7 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*111 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*119 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*93.7 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*111 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM			Batch: 2403002
Diesel Range Organics (C10-C28)	ND	25.0	1	01/15/24	01/17/24	
Oil Range Organics (C28-C36)	ND	50.0	1	01/15/24	01/17/24	
Surrogate: n-Nonane		*113 %*	*50-200*	*01/15/24*	*01/17/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2403010
Chloride	ND	20.0	1	01/15/24	01/15/24	

Sample Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

CSW3 (0-2')

E401062-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Benzene	ND	0.0250	1	01/12/24	01/16/24	
Ethylbenzene	ND	0.0250	1	01/12/24	01/16/24	
Toluene	ND	0.0250	1	01/12/24	01/16/24	
o-Xylene	ND	0.0250	1	01/12/24	01/16/24	
p,m-Xylene	ND	0.0500	1	01/12/24	01/16/24	
Total Xylenes	ND	0.0250	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*118 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*94.0 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*111 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*118 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*94.0 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*111 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM			Batch: 2403002
Diesel Range Organics (C10-C28)	ND	25.0	1	01/15/24	01/17/24	
Oil Range Organics (C28-C36)	ND	50.0	1	01/15/24	01/17/24	
Surrogate: n-Nonane		*115 %*	*50-200*	*01/15/24*	*01/17/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2403010
Chloride	ND	20.0	1	01/15/24	01/15/24	

Sample Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

CSW4 (0-2')

E401062-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Benzene	ND	0.0250	1	01/12/24	01/16/24	
Ethylbenzene	ND	0.0250	1	01/12/24	01/16/24	
Toluene	ND	0.0250	1	01/12/24	01/16/24	
o-Xylene	ND	0.0250	1	01/12/24	01/16/24	
p,m-Xylene	ND	0.0500	1	01/12/24	01/16/24	
Total Xylenes	ND	0.0250	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*118 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*98.7 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*110 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: RKS			Batch: 2402071
Gasoline Range Organics (C6-C10)	ND	20.0	1	01/12/24	01/16/24	
Surrogate: Bromofluorobenzene		*118 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: 1,2-Dichloroethane-d4		*98.7 %*	*70-130*	*01/12/24*	*01/16/24*	
Surrogate: Toluene-d8		*110 %*	*70-130*	*01/12/24*	*01/16/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: KM			Batch: 2403002
Diesel Range Organics (C10-C28)	ND	25.0	1	01/15/24	01/17/24	
Oil Range Organics (C28-C36)	ND	50.0	1	01/15/24	01/17/24	
Surrogate: n-Nonane		*116 %*	*50-200*	*01/15/24*	*01/17/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2403010
Chloride	ND	20.0	1	01/15/24	01/15/24	

QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	**Reported:**
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

Volatile Organic Compounds by EPA 8260B

Analyst: RKS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2402071-BLK1)									Prepared: 01/12/24 Analyzed: 01/16/24
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	*0.584*		*0.500*		*117*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.478*		*0.500*		*95.6*	*70-130*			
Surrogate: Toluene-d8	*0.565*		*0.500*		*113*	*70-130*			
LCS (2402071-BS1)									Prepared: 01/12/24 Analyzed: 01/16/24
Benzene	2.40	0.0250	2.50		95.9	70-130			
Ethylbenzene	2.66	0.0250	2.50		106	70-130			
Toluene	2.57	0.0250	2.50		103	70-130			
o-Xylene	2.60	0.0250	2.50		104	70-130			
p,m-Xylene	5.24	0.0500	5.00		105	70-130			
Total Xylenes	7.83	0.0250	7.50		104	70-130			
Surrogate: Bromofluorobenzene	*0.612*		*0.500*		*122*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.495*		*0.500*		*99.0*	*70-130*			
Surrogate: Toluene-d8	*0.571*		*0.500*		*114*	*70-130*			
Matrix Spike (2402071-MS1)				**Source: E401062-06**					Prepared: 01/12/24 Analyzed: 01/16/24
Benzene	2.46	0.0250	2.50	ND	98.4	48-131			
Ethylbenzene	2.78	0.0250	2.50	ND	111	45-135			
Toluene	2.69	0.0250	2.50	ND	107	48-130			
o-Xylene	2.84	0.0250	2.50	ND	113	43-135			
p,m-Xylene	5.68	0.0500	5.00	ND	114	43-135			
Total Xylenes	8.51	0.0250	7.50	ND	114	43-135			
Surrogate: Bromofluorobenzene	*0.616*		*0.500*		*123*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.498*		*0.500*		*99.5*	*70-130*			
Surrogate: Toluene-d8	*0.566*		*0.500*		*113*	*70-130*			
Matrix Spike Dup (2402071-MSD1)				**Source: E401062-06**					Prepared: 01/12/24 Analyzed: 01/16/24
Benzene	2.19	0.0250	2.50	ND	87.5	48-131	11.7	23	
Ethylbenzene	2.48	0.0250	2.50	ND	99.1	45-135	11.5	27	
Toluene	2.38	0.0250	2.50	ND	95.2	48-130	12.1	24	
o-Xylene	2.52	0.0250	2.50	ND	101	43-135	12.0	27	
p,m-Xylene	5.02	0.0500	5.00	ND	100	43-135	12.3	27	
Total Xylenes	7.54	0.0250	7.50	ND	100	43-135	12.2	27	
Surrogate: Bromofluorobenzene	*0.616*		*0.500*		*123*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.484*		*0.500*		*96.7*	*70-130*			
Surrogate: Toluene-d8	*0.558*		*0.500*		*112*	*70-130*			

QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	**Reported:**
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: RKS

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2402071-BLK1)									Prepared: 01/12/24 Analyzed: 01/16/24
Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: Bromofluorobenzene	*0.584*		*0.500*		*117*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.478*		*0.500*		*95.6*	*70-130*			
Surrogate: Toluene-d8	*0.565*		*0.500*		*113*	*70-130*			
LCS (2402071-BS2)									Prepared: 01/12/24 Analyzed: 01/16/24
Gasoline Range Organics (C6-C10)	58.2	20.0	50.0		116	70-130			
Surrogate: Bromofluorobenzene	*0.616*		*0.500*		*123*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.479*		*0.500*		*95.8*	*70-130*			
Surrogate: Toluene-d8	*0.569*		*0.500*		*114*	*70-130*			
Matrix Spike (2402071-MS2)				**Source: E401062-06**					Prepared: 01/12/24 Analyzed: 01/16/24
Gasoline Range Organics (C6-C10)	58.7	20.0	50.0	ND	117	70-130			
Surrogate: Bromofluorobenzene	*0.635*		*0.500*		*127*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.485*		*0.500*		*97.0*	*70-130*			
Surrogate: Toluene-d8	*0.575*		*0.500*		*115*	*70-130*			
Matrix Spike Dup (2402071-MSD2)				**Source: E401062-06**					Prepared: 01/12/24 Analyzed: 01/16/24
Gasoline Range Organics (C6-C10)	61.0	20.0	50.0	ND	122	70-130	3.72	20	
Surrogate: Bromofluorobenzene	*0.637*		*0.500*		*127*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.481*		*0.500*		*96.1*	*70-130*			
Surrogate: Toluene-d8	*0.584*		*0.500*		*117*	*70-130*			

QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	**Reported:**
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: KM

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2403002-BLK1)									Prepared: 01/15/24 Analyzed: 01/17/24
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	*57.8*		*50.0*		*116*	*50-200*			
LCS (2403002-BS1)									Prepared: 01/15/24 Analyzed: 01/17/24
Diesel Range Organics (C10-C28)	263	25.0	250		105	38-132			
Surrogate: n-Nonane	*58.7*		*50.0*		*117*	*50-200*			
Matrix Spike (2403002-MS1)				**Source: E401062-02**					Prepared: 01/15/24 Analyzed: 01/17/24
Diesel Range Organics (C10-C28)	252	25.0	250	ND	101	38-132			
Surrogate: n-Nonane	*57.1*		*50.0*		*114*	*50-200*			
Matrix Spike Dup (2403002-MSD1)				**Source: E401062-02**					Prepared: 01/15/24 Analyzed: 01/17/24
Diesel Range Organics (C10-C28)	252	25.0	250	ND	101	38-132	0.0965	20	
Surrogate: n-Nonane	*54.7*		*50.0*		*109*	*50-200*			

QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha	**Reported:**
PO Box 247	Project Number:	21064-0001	
Plains TX, 79355-0247	Project Manager:	Tom Bynum	1/18/2024 2:26:09PM

Anions by EPA 300.0/9056A

Analyst: DT

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2403010-BLK1)									Prepared: 01/15/24 Analyzed: 01/15/24
Chloride	ND	20.0							
LCS (2403010-BS1)									Prepared: 01/15/24 Analyzed: 01/15/24
Chloride	249	20.0	250		99.7	90-110			
Matrix Spike (2403010-MS1)				**Source: E401062-02**					Prepared: 01/15/24 Analyzed: 01/15/24
Chloride	251	20.0	250	ND	100	80-120			
Matrix Spike Dup (2403010-MSD1)				**Source: E401062-02**					Prepared: 01/15/24 Analyzed: 01/15/24
Chloride	249	20.0	250	ND	99.8	80-120	0.448	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:	SV Big Bertha	
PO Box 247	Project Number:	21064-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Tom Bynum	01/18/24 14:26

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
RPD	Relative Percent Difference
DNI	Did Not Ignite
DNR	Did not react with the addition of acid or base.

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

Client: Pima Environmental Services
Project: SV Big Bertha
Project Manager: Tom Bynum
Address: 5614 N. Lovington Hwy.
City, State, Zip Hobbs, NM, 88240
Phone: 580-748-1613
Email: tom@pimaoil.com
Report due by:

Bill To
Attention: Armstrong
Address:
City, State, Zip
Phone:
Email:
Pima Project # 19-6-2

Lab Use Only
Lab WO# E401002
Job Number 21064-0001

TAT: 1D | 2D | 3D | Standard: X

EPA Program: CWA | SDWA | RCRA

State: NM: Y | CO | UT | AZ | TX

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	BGDOC NM	BGDOC TX	Remarks
7:00	1/9	S	1	CS1-2'	1							X		
7:16				CS2-2'	2									
7:25				CSW1 (0-2')	3									
7:39				CSW2 (0-2')	4									
7:56				CSW3 (0-2')	5									
8:07				CSW4 (0-2')	6									

Additional Instructions: Bill Pima Environmental

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

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Karime Adame	1/11/24	2:00	Michelle Cruz	1-11-24	1400
Michelle Cruz	1-11-24	1615	Andrew Moss	1-11-24	1700
Andrew Moss	1-11-24	2400	[signature]	1-12-24	945

Lab Use Only
Received on ice: (Y) / N
T1 T2 T3
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

Envirotech Analytical Laboratory

Printed: 1/15/2024 12:24:35PM

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:	01/12/24 09:45	Work Order ID:	E401062
Phone:	(575) 631-6977	Date Logged In:	01/11/24 16:37	Logged In By:	Alexa Michaels
Email:	tom@pimaoil.com	Due Date:	01/18/24 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	Carrier: Courier
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	Yes	
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes	

Comments/Resolution

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

Gio Gomez

5796 U.S. Hwy 64
Farmington, NM 87401

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

envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Pima Environmental Services-Carlsbad

Project Name:	SV Big Bertha #001
Work Order:	E404276
Job Number:	22093-0001
Received:	4/29/2024

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
5/1/24

Date Reported: 5/1/24

Gio Gomez
PO Box 247
Plains, TX 79355-0247

Project Name: SV Big Bertha #001
Workorder: E404276
Date Received: 4/29/2024 7:45:00AM

Gio Gomez,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 4/29/2024 7:45:00AM, 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 reguarding 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

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ljarboe@envirotech-inc.com

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mgonzales@envirotech-inc.com

Envirotech Web Address: www.envirotech-inc.com

Table of Contents

Sample Summary

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	**Reported:**
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Gio Gomez	05/01/24 10:36

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
S8-Del	E404276-01A	Soil	04/25/24	04/29/24	Glass Jar, 2 oz.
S4-Del	E404276-02A	Soil	04/25/24	04/29/24	Glass Jar, 2 oz.
S6-Del	E404276-03A	Soil	04/25/24	04/29/24	Glass Jar, 2 oz.

Sample Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Gio Gomez	5/1/2024 10:36:37AM

S8-Del

E404276-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: EG			Batch: 2418008
Benzene	ND	0.0250	1	04/29/24	04/30/24	
Ethylbenzene	ND	0.0250	1	04/29/24	04/30/24	
Toluene	ND	0.0250	1	04/29/24	04/30/24	
o-Xylene	ND	0.0250	1	04/29/24	04/30/24	
p,m-Xylene	ND	0.0500	1	04/29/24	04/30/24	
Total Xylenes	ND	0.0250	1	04/29/24	04/30/24	
Surrogate: 4-Bromochlorobenzene-PID		*94.8 %*	*70-130*	*04/29/24*	*04/30/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: EG			Batch: 2418008
Gasoline Range Organics (C6-C10)	ND	20.0	1	04/29/24	04/30/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*87.7 %*	*70-130*	*04/29/24*	*04/30/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2418006
Diesel Range Organics (C10-C28)	ND	25.0	1	04/29/24	04/29/24	
Oil Range Organics (C28-C36)	ND	50.0	1	04/29/24	04/29/24	
Surrogate: n-Nonane		*75.1 %*	*50-200*	*04/29/24*	*04/29/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY			Batch: 2418038
Chloride	ND	20.0	1	04/30/24	04/30/24	

Sample Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Gio Gomez	5/1/2024 10:36:37AM

S4-Del

E404276-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: EG			Batch: 2418008
Benzene	ND	0.0250	1	04/29/24	04/30/24	
Ethylbenzene	ND	0.0250	1	04/29/24	04/30/24	
Toluene	ND	0.0250	1	04/29/24	04/30/24	
o-Xylene	ND	0.0250	1	04/29/24	04/30/24	
p,m-Xylene	ND	0.0500	1	04/29/24	04/30/24	
Total Xylenes	ND	0.0250	1	04/29/24	04/30/24	
Surrogate: 4-Bromochlorobenzene-PID		*95.1 %*	*70-130*	*04/29/24*	*04/30/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: EG			Batch: 2418008
Gasoline Range Organics (C6-C10)	ND	20.0	1	04/29/24	04/30/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*86.9 %*	*70-130*	*04/29/24*	*04/30/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2418006
Diesel Range Organics (C10-C28)	ND	25.0	1	04/29/24	04/29/24	
Oil Range Organics (C28-C36)	ND	50.0	1	04/29/24	04/29/24	
Surrogate: n-Nonane		*77.1 %*	*50-200*	*04/29/24*	*04/29/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY			Batch: 2418038
Chloride	ND	20.0	1	04/30/24	05/01/24	

Sample Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Gio Gomez	5/1/2024 10:36:37AM

S6-Del

E404276-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: EG			Batch: 2418008
Benzene	ND	0.0250	1	04/29/24	04/30/24	
Ethylbenzene	ND	0.0250	1	04/29/24	04/30/24	
Toluene	ND	0.0250	1	04/29/24	04/30/24	
o-Xylene	ND	0.0250	1	04/29/24	04/30/24	
p,m-Xylene	ND	0.0500	1	04/29/24	04/30/24	
Total Xylenes	ND	0.0250	1	04/29/24	04/30/24	
Surrogate: 4-Bromochlorobenzene-PID		*94.9 %*	*70-130*	*04/29/24*	*04/30/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: EG			Batch: 2418008
Gasoline Range Organics (C6-C10)	ND	20.0	1	04/29/24	04/30/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*88.4 %*	*70-130*	*04/29/24*	*04/30/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2418006
Diesel Range Organics (C10-C28)	ND	25.0	1	04/29/24	04/29/24	
Oil Range Organics (C28-C36)	ND	50.0	1	04/29/24	04/29/24	
Surrogate: n-Nonane		*77.1 %*	*50-200*	*04/29/24*	*04/29/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: IY			Batch: 2418038
Chloride	ND	20.0	1	04/30/24	04/30/24	

QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	**Reported:**
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Gio Gomez	5/1/2024 10:36:37AM

Volatile Organics by EPA 8021B

Analyst: EG

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2418008-BLK1)									Prepared: 04/29/24 Analyzed: 04/29/24
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	*7.20*		*8.00*		*90.0*	*70-130*			
LCS (2418008-BS1)									Prepared: 04/29/24 Analyzed: 04/29/24
Benzene	4.27	0.0250	5.00		85.4	70-130			
Ethylbenzene	4.23	0.0250	5.00		84.6	70-130			
Toluene	4.26	0.0250	5.00		85.2	70-130			
o-Xylene	4.17	0.0250	5.00		83.3	70-130			
p,m-Xylene	8.51	0.0500	10.0		85.1	70-130			
Total Xylenes	12.7	0.0250	15.0		84.5	70-130			
Surrogate: 4-Bromochlorobenzene-PID	*7.32*		*8.00*		*91.5*	*70-130*			
Matrix Spike (2418008-MS1)				**Source: E404270-11**					Prepared: 04/29/24 Analyzed: 04/29/24
Benzene	4.95	0.0250	5.00	ND	98.9	54-133			
Ethylbenzene	4.92	0.0250	5.00	ND	98.4	61-133			
Toluene	4.92	0.0250	5.00	ND	98.4	61-130			
o-Xylene	4.86	0.0250	5.00	ND	97.1	63-131			
p,m-Xylene	9.89	0.0500	10.0	ND	98.9	63-131			
Total Xylenes	14.7	0.0250	15.0	ND	98.3	63-131			
Surrogate: 4-Bromochlorobenzene-PID	*7.26*		*8.00*		*90.7*	*70-130*			
Matrix Spike Dup (2418008-MSD1)				**Source: E404270-11**					Prepared: 04/29/24 Analyzed: 04/29/24
Benzene	4.99	0.0250	5.00	ND	99.8	54-133	0.906	20	
Ethylbenzene	4.97	0.0250	5.00	ND	99.4	61-133	1.07	20	
Toluene	4.97	0.0250	5.00	ND	99.4	61-130	1.07	20	
o-Xylene	4.90	0.0250	5.00	ND	98.1	63-131	0.966	20	
p,m-Xylene	10.0	0.0500	10.0	ND	100	63-131	1.24	20	
Total Xylenes	14.9	0.0250	15.0	ND	99.5	63-131	1.15	20	
Surrogate: 4-Bromochlorobenzene-PID	*7.23*		*8.00*		*90.4*	*70-130*			

QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	**Reported:**
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Gio Gomez	5/1/2024 10:36:37AM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: EG

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2418008-BLK1)									Prepared: 04/29/24 Analyzed: 04/29/24
Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	*6.97*		*8.00*		*87.1*	*70-130*			
LCS (2418008-BS2)									Prepared: 04/29/24 Analyzed: 04/29/24
Gasoline Range Organics (C6-C10)	43.5	20.0	50.0		86.9	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.00*		*8.00*		*87.5*	*70-130*			
Matrix Spike (2418008-MS2)				**Source: E404270-11**					Prepared: 04/29/24 Analyzed: 04/29/24
Gasoline Range Organics (C6-C10)	44.8	20.0	50.0	ND	89.6	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.07*		*8.00*		*88.3*	*70-130*			
Matrix Spike Dup (2418008-MSD2)				**Source: E404270-11**					Prepared: 04/29/24 Analyzed: 04/29/24
Gasoline Range Organics (C6-C10)	45.9	20.0	50.0	ND	91.7	70-130	2.30	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	*7.18*		*8.00*		*89.7*	*70-130*			

QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	**Reported:**
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Gio Gomez	5/1/2024 10:36:37AM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: NV

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2418006-BLK1)									Prepared: 04/29/24 Analyzed: 04/29/24
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	*37.7*		*50.0*		*75.4*	*50-200*			
LCS (2418006-BS1)									Prepared: 04/29/24 Analyzed: 04/29/24
Diesel Range Organics (C10-C28)	212	25.0	250		84.6	38-132			
Surrogate: n-Nonane	*36.7*		*50.0*		*73.5*	*50-200*			
Matrix Spike (2418006-MS1)				**Source: E404279-06**					Prepared: 04/29/24 Analyzed: 04/29/24
Diesel Range Organics (C10-C28)	211	25.0	250	ND	84.3	38-132			
Surrogate: n-Nonane	*36.5*		*50.0*		*72.9*	*50-200*			
Matrix Spike Dup (2418006-MSD1)				**Source: E404279-06**					Prepared: 04/29/24 Analyzed: 04/29/24
Diesel Range Organics (C10-C28)	214	25.0	250	ND	85.6	38-132	1.50	20	
Surrogate: n-Nonane	*37.2*		*50.0*		*74.4*	*50-200*			

QC Summary Data

Pima Environmental Services-Carlsbad	Project Name:	SV Big Bertha #001	**Reported:**
PO Box 247	Project Number:	22093-0001	
Plains TX, 79355-0247	Project Manager:	Gio Gomez	5/1/2024 10:36:37AM

Anions by EPA 300.0/9056A

Analyst: IY

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2418038-BLK1)									Prepared: 04/30/24 Analyzed: 04/30/24
Chloride	ND	20.0							
LCS (2418038-BS1)									Prepared: 04/30/24 Analyzed: 04/30/24
Chloride	249	20.0	250		99.5	90-110			
Matrix Spike (2418038-MS1)				**Source: E404287-01**					Prepared: 04/30/24 Analyzed: 04/30/24
Chloride	690	20.0	250	442	99.2	80-120			
Matrix Spike Dup (2418038-MSD1)				**Source: E404287-01**					Prepared: 04/30/24 Analyzed: 04/30/24
Chloride	713	20.0	250	442	108	80-120	3.25	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:	SV Big Bertha #001	
PO Box 247	Project Number:	22093-0001	**Reported:**
Plains TX, 79355-0247	Project Manager:	Gio Gomez	05/01/24 10:36

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
RPD	Relative Percent Difference
DNI	Did Not Ignite
DNR	Did not react with the addition of acid or base.

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 1

Client: Pima Environmental Services	
Project: SV Big Bertha #001	
Project Manager: Glo Gomez	
Address: 5614 N. Lovington Hwy.	
City, State, Zip Hobbs, NM, 88240	
Phone: 806-782-1151	
Email: glo@pimaoil.com	
Report due by:	

Bill To

Attention: Armstrong Energy	
Address:	
City, State, Zip	
Phone:	
Email:	
Pima Project # 19-6-2	

Lab Use Only

Lab WO#	Job Number
E404276	~~2RS~~ 22093-0001

TAT

1D	2D	3D	Standard
			X

EPA Program

CWA	SDWA	RCRA

State

NM	CO	UT	AZ	TX	
X					

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0			BGDOC NM	BGDOC TX			Remarks
11:05	4/25/24	Soil	1-202	S8-Del	1									X				
11:12				S4-Del	2													
11:24				S6-Del	3													

Additional Instructions:

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

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Rebecca Cook	04/26	1200	Michelle Gonzales	4-26-24	1200
Michelle Gonzales	4-26-24	1700	[illegible]	4.26.24	1700
[illegible]	4.26.24	2300	Kenneth R Hall	4-29-24	0745

Lab Use Only

Received on ice: (Y) / N

T1 T2 T3

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

Envirotech Analytical Laboratory

Printed: 5/1/2024 10:34:13AM

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:	04/29/24 07:45	Work Order ID:	E404276
Phone:	(575) 631-6977	Date Logged In:	04/26/24 16:17	Logged In By:	Alexa Michaels
Email:	gio@pimaoil.com	Due Date:	05/03/24 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	Carrier: Courier
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	Yes	
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes	

Comments/Resolution

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

SV Big Bertha #001 - Armstrong Energy 01/9/24

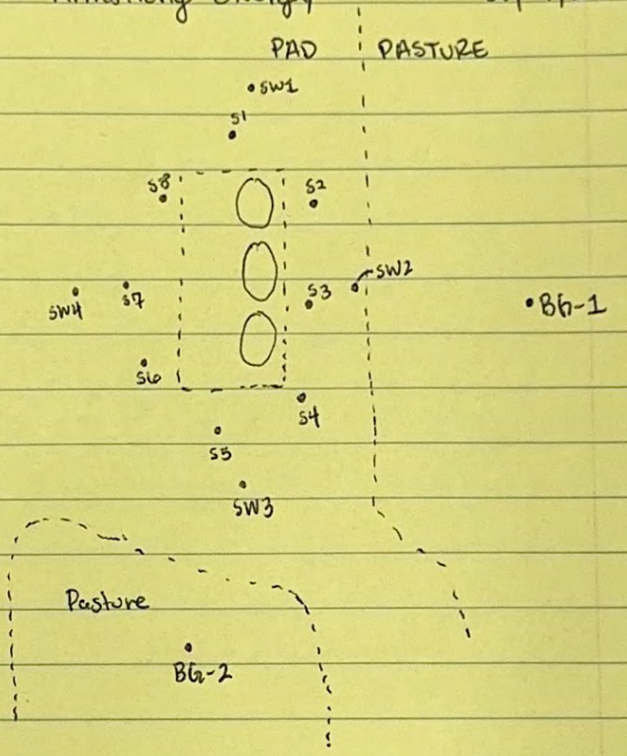
Samples Collected (Time)

ON PAD

S1-4' @ 9:13 am
S2-4' @ 9:38 am
S3-4' @ 9:51 am
S4-4' @ 10:17 am
S5-4' @ 10:33 am
S6-4' @ 10:56 am
S7-4' @ 11:19 am
S8-4' @ 11:44 am
SW1-1' @ 12:02 am
SW2-1' @ 12:15 am
SW3-1' @ 12:23 am
SW4-1' @ 12:34 am

Pasture

(BG-1)-1' @ 12:50 am
(BG-2)-1' @ 1:05 am



Sample	Titration	PID	Sample	Titration	PID
S1-4'	12	0.0	SW1-1'	0.0	0.0
S2-4'	0.0	0.0	SW2-1'	0.0	0.0
S3-4'	56	0.0	SW3-1'	0.0	0.0
S4-4'	0.0	0.0	SW4-1'	0.0	0.0
S5-4'	0.0	0.0	(BG-1)-1'	0.0	0.0
S6-4'	0.0	0.0	(BG-2)-1'	0.0	0.0
S7-4'	0.0	0.0			
S8-4'	0.0	0.0			

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

QUESTIONS

Action 347370

QUESTIONS

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 347370
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nGRL0902751331**
Incident Name	**NGRL0902751331 SV BIG BERTHA #001 @ 30-025-33883**
Incident Type	**Produced Water Release**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-025-33883] SV BIG BERTHA #001**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	SV BIG BERTHA #001
Date Release Discovered	01/20/2009
Surface Owner	Private

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	*Not answered.*
Produced Water Released (bbls) Details	Cause: Overflow - Tank, Pit, Etc. | Tank (Any) | Produced Water | Released: 120 BBL | Recovered: 110 BBL | Lost: 10 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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QUESTIONS (continued)

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 347370
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

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.

I hereby agree and sign off to the above statement	Name: Jeffery Tew Title: Operations Engineer Email: Jtew@aecnm.com Date: 05/23/2024

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QUESTIONS (continued)

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 347370
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). 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 in feet below ground surface (ft bgs)	Between 51 and 75 (ft.)
What method was used to determine the depth to ground water	U.S. Geological Survey
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Greater than 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Between 1000 (ft.) and ½ (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1000 (ft.) and ½ (mi.)
Any other fresh water well or spring	Between 1000 (ft.) and ½ (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Between 1000 (ft.) and ½ (mi.)
A wetland	Greater than 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	None
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	Yes
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	01/09/2024
On what date will (or did) the final sampling or liner inspection occur	01/09/2024
On what date will (or was) the remediation complete(d)	10/12/2022
What is the estimated surface area (in square feet) that will be remediated	392
What is the estimated volume (in cubic yards) that will be remediated	29
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 347370
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
Is (or was) there affected material present needing to be removed	Yes
Is (or was) there a power wash of the lined containment area (to be) performed	No
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
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.	
I hereby agree and sign off to the above statement	Name: Jeffery Tew Title: Operations Engineer Email: Jtew@aecnm.com Date: 05/23/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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1625 N. French Dr., Hobbs, NM 88240
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District II
811 S. First St., Artesia, NM 88210
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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

QUESTIONS (continued)

Operator: ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	OGRID: 1092
	Action Number: 347370
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Liner Inspection Information	
Last liner inspection notification (C-141L) recorded	***{Unavailable.}***
Was all the impacted materials removed from the liner	*Unavailable.*

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**Yes**
What was the total surface area (in square feet) remediated	392
What was the total volume (cubic yards) remediated	29
Summarize any additional remediation activities not included by answers (above)	In response to a prior rejection of this report, further confirmation samples were gathered to conclusively ensure the absence of any remaining contamination in the previously excavated area. On January 9th, 2024, following the submission of a 48-hour sampling notification, Pima Environmental collected two bottom composite samples. Each sample comprised a 5-point composite of the bottom section previously excavated. Additionally, four composite side wall samples were collected, spanning the full depth of the excavation from the bottom to the surface, ensuring comprehensive sampling of the side walls. The comprehensive laboratory results for this sampling event are presented in the accompanying data table. Additionally, a detailed confirmation site map can be referenced in Figure 6. Complete laboratory reports can be found in Appendix E.
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 (in .pdf format) 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.	

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.

I hereby agree and sign off to the above statement	Name: Jeffery Tew Title: Operations Engineer Email: Jtew@aecnm.com Date: 05/23/2024

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CONDITIONS

Action 347370

CONDITIONS

Operator:	OGRID:
ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	1092
	Action Number: 347370
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Remediation closure approved.	5/29/2024
amaxwell	• The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	5/29/2024