

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	NVF1900239191
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: BP America Production Co.	OGRID: 778	Final
Contact Name: Steve Moskal	Contact Telephone: (505) 330-9179	
Contact email: steven.moskal@bpx.com	Incident # (assigned by OCD)	
Contact mailing address: 1199 Main Street, Suite 101, Durango CO, 81301	NVF1900239191	

Location of Release Source

Latitude: 36.6943469° Longitude: -107.6434987°
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Hardie LS 001A	Site Type: Natural Gas Production Well Pad
Date Release Discovered: December 17, 2018	API#: 30-045-22415

Unit Letter	Section	Township	Range	County
J	26	T29N	R08W	San Juan

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☐ Produced Water	Volume Released (bbls):	Volume Recovered (bbls):
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☒ Condensate	Volume Released (bbls): <u>Est 20 bbls</u>	Volume Recovered (bbls): <u>0 bbls</u>
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

Impacts were identified at the location on November 20, 2018 during a site inspection. A small stained area of soil was noted, but appeared to be isolated. The source was unknown. Upon further investigation, it was discovered an open ended flow line from the separator had been buried during the remedial activities of the BGT in March of 2018. On December 17, 2018, it was confirmed that the release had migrated at least 17 vertical feet from the surface. Full delineation of the release been completed and documented in the attached report.

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

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

☒ The source of the release has been stopped. ☒ The impacted area has been secured to protect human health and the environment. ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. ☒ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Steve Moskal</u>	Title: <u>Environmental Coordinator</u>
Signature: 	Date: <u>December 19, 2018</u>
email: <u>steven.moskal@bpx.com</u>	Telephone: <u>(505) 330-9179</u>
<u>OCD Only</u>	
Received by: _____	Date: _____

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Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>>400</u> (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas not on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

Characterization Report Checklist: <i>Each of the following items must be included in the report.</i> ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells. ☐ Field data ☐ Data table of soil contaminant concentration data ☐ Depth to water determination ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release ☐ Boring or excavation logs ☐ Photographs including date and GIS information ☐ Topographic/Aerial maps ☐ Laboratory data including chain of custody
--

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

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Printed Name: Steve Moskal Title: Environmental Coordinator

Signature:  Date: December 19, 2018

email: steven.moskal@bpx.com Telephone: (505) 330-9179

OCD Only

Received by: _____ Date: _____

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Remediation Plan

Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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Printed Name: Steve Moskal Title: Environmental Coordinator

Signature: 

Date: December 19, 2018

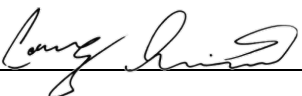
email: steven.moskal@bpx.com

Telephone: (505) 330-9179

OCD Only

Received by: OCD Date: 9/11/19

☒ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: 

Date: 10/7/19

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

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

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

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

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Steve Moskal Title: Environmental Coordinator

Signature: 

Date: December 19, 2018

email: steven.moskal@bpx.com

Telephone: (505) 330-9179

OCD Only

Received by: _____ Date: _____

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

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

BPX Energy Inc.

(Formerly BP America Production Company)

Hardie LS 001A - API: 30-045-22415

(J) Sec 26 – T29N – R08W, San Juan County, New Mexico

Summary Record of Impacted Soils Remediation

November 20, 2018 Initiated inspection of discovered release. Siting criteria established for closure standards (see Site Inspection Section).

December 17, 2018 Initiated release investigation with advancement of two (2) trenches starting at the known point of release. Collected grab sample approximately 17 feet (**ft.**) below grade (**b.g.**) from trench #2 (see Release Investigation Section).

December 18, 2018 Grab sample preliminary lab results were as follows;
benzene = 90.3 mg/Kg; benzene, toluene, ethylbenzene, and total xylenes (**BTEX**) = 1,690 mg/Kg; TPH (GRO+DRO) = 20,320 mg/Kg; total TPH = 22,240 mg/Kg; chloride = 103 mg/Kg.

December 19, 2018 BP submitted subsequent C-141 which included Remediation Plan to the New Mexico Oil Conservation Division (**NMOCD**) and to Bureau of Land Management (**BLM**). NMOCD approved 01/02/2019. Information provided support for applicable closure standards.

December 20, 2018 Received 12/17/2018 final laboratory reports. Official date of impact discovery.

April 15, 2019 Initiated remediation via excavation and soil shredding (see Site Remediation Section). Scheduling of initial closure and treated soils sampling conducted 04/18/2019 and 04/19/2019 respectively (see April Email Correspondence).

April 19, 2019 Received 04/18/2019 preliminary closure sample laboratory report. East and south sidewalls exceeded BTEX along with TPH (GRO+DRO) closure standards. Resampling of extended sidewalls scheduled for 04/22/2019. Summary table of results listed on following pages.

April 23, 2019 Received 04/22/2019 preliminary closure sample laboratory report of extended sidewalls.

May 9, 2019 Received final treated soil sample laboratory report. Summary table of results listed on following pages.

May 17, 2019 Completed excavation backfilling.

July 25, 2019 Conducted vadose zone sampling of treated stockpile areas (see July Email Correspondence within Vadose Zone Confirmation Section).

August 2, 2019 Received 07/25/2019 vadose zone soil sample final laboratory report. Summary table of results listed on following pages. Aerial map and photos of sample locations along with lab report included in this document.

BPX Energy Inc.

(Formerly BP America Production Company)

Hardie LS 1A - API: 30-045-22415

(I) Sec 26 – T29N – R08W, San Juan County, New Mexico

Excavation Closure Sampling Test Results

April 18, 2019 & April 22, 2019 – *(Extended South & East Walls)*

Excavation Size: 40 x 36' x 20' Deep

Sample ID	Time	5-pt Comp. Depths (feet)	Field OVM (ppm)	Benzene (mg/Kg)	Total BTEX (mg/Kg)	TPH GRO (mg/Kg)	TPH DRO (mg/Kg)	TPH MRO (mg/Kg)	TPH (GRO + DRO) (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
North Wall	1253	8 - 18	1,253	ND	0.353	ND	140	64.1	140	204.1	76.7
South Wall	1243	8 - 18	3,783	1.26	90.42	681	1,150	301	1,831	2,132	116
Extended South Wall	1322	8 - 18	15.3	ND	ND	ND	ND	ND	ND	ND	96.4
East Wall	1251	8 - 18	3,138	1.74	112.94	831	1,270	267	2,101	2,368	82.3
Extended East Wall	1327	8 - 18	37.8	ND	ND	ND	ND	ND	ND	ND	56.5
West Wall	1207	8 - 18	22.0	ND	ND	ND	ND	ND	ND	ND	77.8
Base	1247	20	1,747	0.187	9.029	89.3	458	113	547.3	660.3	20.1
NMOCD Site Closure Standards -				10	50				1,000	2,500	20,000

OVM – Organic Vapor Meter, ppm – parts per million, mg/Kg – milligram per kilogram, BTEX – benzene, toluene, ethylbenzene, total xylenes, TPH – Total Petroleum Hydrocarbons, GRO – Gasoline Range Organics, DRO – Diesel Range Organics, MRO or ORO – Motor Oil Range Organics, NA – Not Analyzed, ND – Not detected at laboratory reporting limit.

BPX Energy Inc.

(Formerly BP America Production Company)

Hardie LS 1A - API: 30-045-22415

(J) Sec 26 – T29N – R08W, San Juan County, New Mexico

Treated Soil Pile Test Results

April 19 through May 7, 2019

Sample ID	Stockpile Volume (c.y.)	Date Created	Date Sampled	Field OVM (ppm)	Benzene (mg/Kg)	Total BTEX (mg/Kg)	TPH GRO (mg/Kg)	TPH DRO (mg/Kg)	TPH MRO (mg/Kg)	TPH (GRO + DRO) (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
TSP-1	100	4/24/19	4/25/19	894	ND	1.988	43.5	515	106	558.5	664.5	64.1
TSP-2	100	4/24/19	4/25/19	795	ND	3.715	75.7	285	87.9	360.7	448.6	51.5
TSP-3	100	4/25/19	4/26/19	1,578	0.0337	10.7407	124	505	127	629	756	62.1
TSP-4	100	4/25/19	4/26/19	992	ND	5.984	69.6	284	ND	353.6	353.6	64.8
TSP-5	100	4/25/19	4/26/19	2,400	0.103	21.74	202	605	112	807	919	60.6
TSP-6	100	4/29/19	4/30/19	724	ND	4.5535	72.5	542	117	614.5	731.5	60.6
TSP-7	100	4/29/19	4/30/19	778	ND	4.3	68.6	499	127	567.6	694.6	71.7
TSP-8	100	4/29/19	4/30/19	804	ND	2.7495	54.6	449	109	503.6	522.6	72.2
TSP-9	100	4/29/19	4/30/19	721	ND	2.4315	49.2	398	101	447.2	548.2	67.3
TSP-10	100	4/29/19	4/30/19	441	ND	6.23	107	575	149	682	831	58.1
TSP-11	100	4/30/19	5/01/19	756	0.0309	11.0259	123	767	153	890	1,043	49.5
TSP-12	100	4/30/19	5/01/19	811	0.0335	11.3385	137	535	95.8	672	767.8	49.9
TSP-13	100	4/30/19	5/01/19	976	0.0259	11.2469	115	667	112	782	894	50.1
TSP-14	100	4/30/19	5/01/19	603	ND	4.4346	58.1	511	103	569.1	672.1	53.5
TSP-15	500	5/02/19	5/03/19	352	ND	2.9462	40.5	318	75.1	358.5	433.6	55.9
TSP-16	400	5/06/19	5/07/19	981	ND	5.569	63.4	653	99.5	716.4	815.9	57.4
TSP-17	300	5/06/19	5/07/19	1,431	0.0696	12.4516	120	570	100	690	790	40.1
NMOCD Site Closure Standards -					10	50				1,000	2,500	20,000

c.y. – cubic yards, OVM – Organic Vapor Meter, ppm – parts per million, mg/Kg – milligram per kilogram, BTEX – benzene, toluene, ethylbenzene, total xylenes, TPH – Total Petroleum Hydrocarbons, GRO – Gasoline Range Organics, DRO – Diesel Range Organics, MRO or ORO – Motor Oil Range Organics, NA – Not Analyzed, ND – Not detected at laboratory reporting limit.

BPX Energy Inc.

(Formerly BP America Production Company)

Hardie LS 1A - API: 30-045-22415

(I) Sec 26 – T29N – R08W, San Juan County, New Mexico

Vadose Zone Closure Sampling Test Results

July 25, 2019

(see attached aerial map of areas sampled)

Sample ID	Time	6-pt Comp. Depths (inches)	Field OVM (ppm)	Benzene (mg/Kg)	Total BTEX (mg/Kg)	TPH GRO (mg/Kg)	TPH DRO (mg/Kg)	TPH MRO (mg/Kg)	TPH (GRO + DRO) (mg/Kg)	Total TPH (mg/Kg)	Chloride (mg/Kg)
TSP – VZ #1	1120	4 - 8	NA	ND	ND	ND	283	80.7	283	363.7	37.7
TSP – VZ #2	1150	4 - 8	NA	ND	ND	ND	186	51.5	186	237.5	61.4
TSP – VZ #3	1210	4 - 8	NA	ND	ND	ND	76.7	ND	76.7	76.7	44.7
TSP – VZ #4	1230	4 - 8	NA	ND	ND	ND	30.0	ND	30.0	30.0	ND
NMOCD Site Closure Standards -				10	50				1,000	2,500	20,000

OVM – Organic Vapor Meter, ppm – parts per million, mg/Kg – milligram per kilogram, BTEX – benzene, toluene, ethylbenzene, total xylenes, TPH – Total Petroleum Hydrocarbons, GRO – Gasoline Range Organics, DRO – Diesel Range Organics, MRO or ORO – Motor Oil Range Organics, NA – Not Analyzed, ND – Not detected at laboratory reporting limit.

RELEASE

INSPECTION



NMOCD Site Ranking Estimate:

Depth to water >400'

Nearest Water Course = 345'

Nearest Water Well = 2,480'

Ranking: TPH (GRO+DRO) = 1,000 ppm

TPH (GRO+DRO+MRO) = 2,500 ppm



Release as found on Nov 21, 2018

Flow line shut in.

Volume estimated at < 1 bbl



Hand auger to 2' depth. Impacts present. Field OVM = 3,840 ppm @ 2'

BPX Energy
Hardie LS 1A - API: 30-045-22415
(J) Sec 26 - T29N - R8W

Load Line Release Point

Hardie LS 1A

1,028 Feet

345 Feet

Google earth

© 2018 Google



600 ft

RELEASE

INVESTIGATION

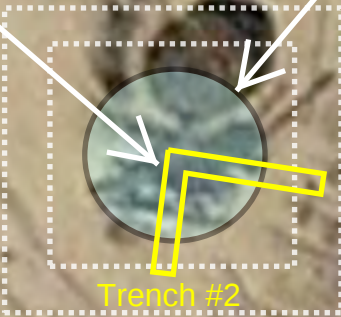
BPX ENERGY
HARDIE LS 001A - API #: 30-045-22415
(J) Sec. 26, T29N, R08W, San Juan County, New Mexico

December 17, 2018
Release Investigation

Hardie LS 1A

Sample Grab @17'
TPH = 22,240 ppm
Benzene = 90.3 ppm
BTEX = 1,690 ppm
CL- = 103 ppm

Impacted Zone
25' Diameter
Depth > 20'



Trench #1

Trench #2

Estimated Remedial
Excavation Required
to Remove Impacts:
Top Perimeter: 35' x 35'
Base Perimeter: 30' x 30'
Depth: 25' +/-
Volume: 975 CY

BPX Energy

Hardie LS 1A - API: 30-045-22415

(J) Sec 26 - T29N - R8W

Exposed Pipelines
December 17, 2018

This line found with
no end plug
(Release Source)



BPX Energy

Hardie LS 1A - API: 30-045-22415

(J) Sec 26 - T29N - R8W

Trench #2

December 17, 2018

Sample Grab @ 17'



BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 12/20/18 12:57

Release- Grab @17"
P812036-01 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	90300	1000	ug/kg	10	1851002	12/17/18	12/18/18	EPA 8021B	
Toluene	675000	10000	ug/kg	100	1851002	12/17/18	12/18/18	EPA 8021B	
Ethylbenzene	62800	1000	ug/kg	10	1851002	12/17/18	12/18/18	EPA 8021B	
p,m-Xylene	745000	20000	ug/kg	100	1851002	12/17/18	12/18/18	EPA 8021B	
o-Xylene	113000	1000	ug/kg	10	1851002	12/17/18	12/18/18	EPA 8021B	
Total Xylenes	858000	1000	ug/kg	10	1851002	12/17/18	12/18/18	EPA 8021B	
Total BTEX	1690000	1000	ug/kg	10	1851002	12/17/18	12/18/18	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		87.2 %		50-150	1851002	12/17/18	12/18/18	EPA 8021B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	7820	200	mg/kg	10	1851002	12/17/18	12/18/18	EPA 8015D	
Diesel Range Organics (C10-C28)	12500	250	mg/kg	10	1851004	12/18/18	12/19/18	EPA 8015D	
Oil Range Organics (C28-C40+)	1920	500	mg/kg	10	1851004	12/18/18	12/19/18	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		119 %		50-150	1851002	12/17/18	12/18/18	EPA 8015D	
<i>Surrogate: n-Nonane</i>		1910 %		50-200	1851004	12/18/18	12/19/18	EPA 8015D	Surr2

Anions by 300.0/9056A

Chloride	103	20.0	mg/kg	1	1851015	12/18/18	12/18/18	EPA 300.0/9056A	
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SITE

REMEDIATION

April 2019 Email Correspondence

From: Jeff Blagg
Sent: April 17, 2019 at 7:45 AM
To: Cory Smith - NMOCD, Adeloye, Abiodun – BLM, Brandon Powell - NMOCD
Cc: Don Buller - BPX, Dustin Mace - Unlimited, Steve Moskal - BPX, blagg_njv@yahoo.com
Subject: Re: Remediation Notification - Hardie LS 001A

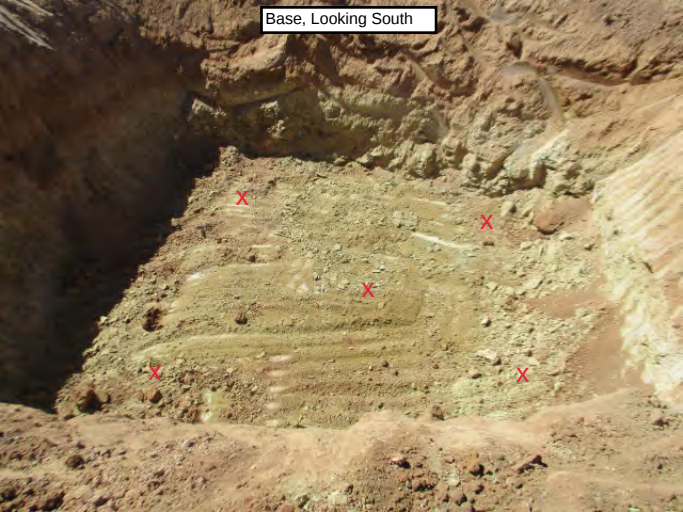
Cory, Emmanuel and Brandon:

Remedial activities at the Hardie LS 1A have been delayed and the excavation will not be ready for sampling today. We would like to schedule closure sampling for tomorrow at Noon. Treated soil sampling is now scheduled for Friday at Noon.

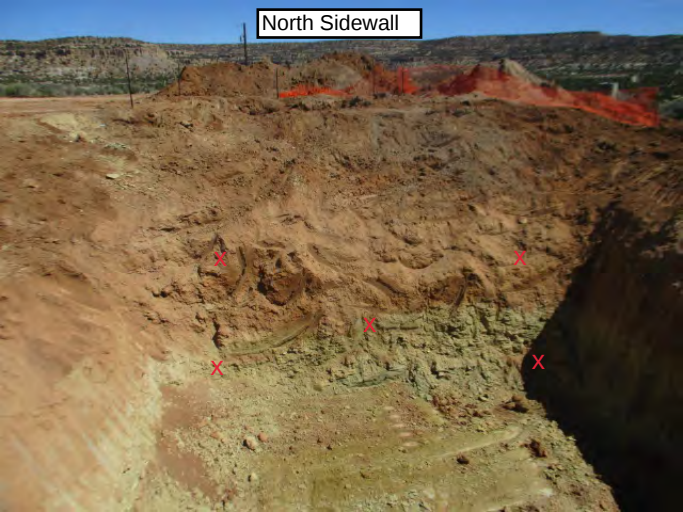
Thanks,

Jeff Blagg - Blagg Engineering, Inc.

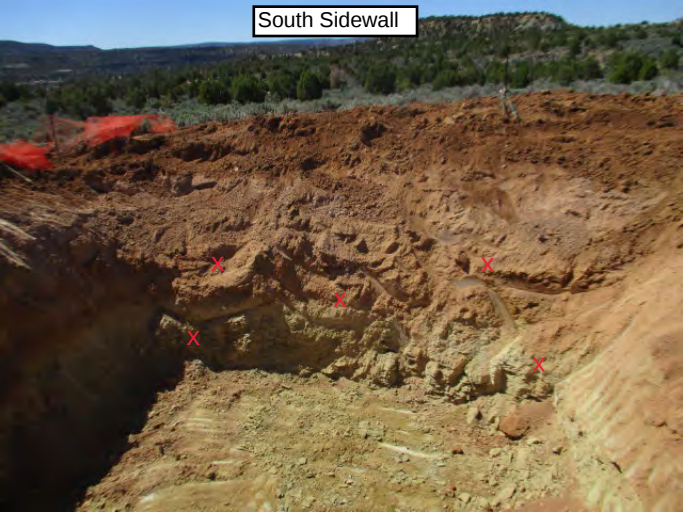
Base, Looking South



North Sidewall



South Sidewall



East Sidewall



West Sidewall



Extended East Wall



Extended South Wall



BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/22/19 14:56

BASE 5-pt @ 20'
P904104-01 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	0.187	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Toluene	2.34	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Ethylbenzene	0.432	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
p,m-Xylene	5.01	0.0500	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
o-Xylene	1.05	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Total Xylenes	6.07	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		99.0 %		70-130	1916025	04/18/19	04/18/19	EPA 8260B	
Surrogate: Toluene-d8		106 %		70-130	1916025	04/18/19	04/18/19	EPA 8260B	
Surrogate: Bromofluorobenzene		96.4 %		70-130	1916025	04/18/19	04/18/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	89.3	20.0	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8015D	
Diesel Range Organics (C10-C28)	458	25.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
Oil Range Organics (C28-C40)	113	50.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
Surrogate: n-Nonane		122 %		50-200	1916036	04/18/19	04/19/19	EPA 8015D	
Surrogate: 1,2-Dichloroethane-d4		99.0 %		70-130	1916025	04/18/19	04/18/19	EPA 8015D	
Surrogate: Toluene-d8		106 %		70-130	1916025	04/18/19	04/18/19	EPA 8015D	
Surrogate: Bromofluorobenzene		96.4 %		70-130	1916025	04/18/19	04/18/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	20.1	20.0	mg/kg	1	1916033	04/18/19	04/19/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/22/19 14:56

**West Wall 5-pt (8'-18')
 P904104-02 (Solid)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	ND	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Toluene	ND	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Ethylbenzene	ND	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
p,m-Xylene	ND	0.0500	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
o-Xylene	ND	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Total Xylenes	ND	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		100 %		70-130	1916025	04/18/19	04/18/19	EPA 8260B	
<i>Surrogate: Toluene-d8</i>		98.4 %		70-130	1916025	04/18/19	04/18/19	EPA 8260B	
<i>Surrogate: Bromofluorobenzene</i>		98.4 %		70-130	1916025	04/18/19	04/18/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		89.2 %		50-200	1916036	04/18/19	04/19/19	EPA 8015D	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		100 %		70-130	1916025	04/18/19	04/18/19	EPA 8015D	
<i>Surrogate: Toluene-d8</i>		98.4 %		70-130	1916025	04/18/19	04/18/19	EPA 8015D	
<i>Surrogate: Bromofluorobenzene</i>		98.4 %		70-130	1916025	04/18/19	04/18/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	77.8	20.0	mg/kg	1	1916033	04/18/19	04/19/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/22/19 14:56

**South Wall 5-pt (8'-18')
 P904104-03 (Solid)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	1.26	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
Toluene	24.2	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
Ethylbenzene	4.66	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
p,m-Xylene	50.0	0.500	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
o-Xylene	10.2	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
Total Xylenes	60.3	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		98.9 %		70-130	1916025	04/18/19	04/19/19	EPA 8260B	
Surrogate: Toluene-d8		105 %		70-130	1916025	04/18/19	04/19/19	EPA 8260B	
Surrogate: Bromofluorobenzene		96.1 %		70-130	1916025	04/18/19	04/19/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	681	200	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8015D	
Diesel Range Organics (C10-C28)	1150	25.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
Oil Range Organics (C28-C40)	301	50.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
Surrogate: n-Nonane		222 %		50-200	1916036	04/18/19	04/19/19	EPA 8015D	Surr2
Surrogate: 1,2-Dichloroethane-d4		98.9 %		70-130	1916025	04/18/19	04/19/19	EPA 8015D	
Surrogate: Toluene-d8		105 %		70-130	1916025	04/18/19	04/19/19	EPA 8015D	
Surrogate: Bromofluorobenzene		96.1 %		70-130	1916025	04/18/19	04/19/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	116	20.0	mg/kg	1	1916033	04/18/19	04/19/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/22/19 14:56

**East Wall 5-pt (8'-18')
 P904104-04 (Solid)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	1.74	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
Toluene	31.8	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
Ethylbenzene	5.70	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
p,m-Xylene	61.3	0.500	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
o-Xylene	12.3	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
Total Xylenes	73.7	0.250	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		102 %		70-130	1916025	04/18/19	04/19/19	EPA 8260B	
Surrogate: Toluene-d8		105 %		70-130	1916025	04/18/19	04/19/19	EPA 8260B	
Surrogate: Bromofluorobenzene		94.2 %		70-130	1916025	04/18/19	04/19/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	831	200	mg/kg	10	1916025	04/18/19	04/19/19	EPA 8015D	
Diesel Range Organics (C10-C28)	1270	25.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
Oil Range Organics (C28-C40)	267	50.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
Surrogate: n-Nonane		243 %		50-200	1916036	04/18/19	04/19/19	EPA 8015D	Surr2
Surrogate: 1,2-Dichloroethane-d4		102 %		70-130	1916025	04/18/19	04/19/19	EPA 8015D	
Surrogate: Toluene-d8		105 %		70-130	1916025	04/18/19	04/19/19	EPA 8015D	
Surrogate: Bromofluorobenzene		94.2 %		70-130	1916025	04/18/19	04/19/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	82.3	20.0	mg/kg	1	1916033	04/18/19	04/19/19	EPA 300.0/9056A	
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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/22/19 14:56

**North Wall 5-pt (8'-18')
P904104-05 (Solid)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	ND	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Toluene	0.0820	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Ethylbenzene	ND	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
p,m-Xylene	0.214	0.0500	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
o-Xylene	0.0565	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Total Xylenes	0.271	0.0250	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		95.3 %		70-130	1916025	04/18/19	04/18/19	EPA 8260B	
Surrogate: Toluene-d8		99.2 %		70-130	1916025	04/18/19	04/18/19	EPA 8260B	
Surrogate: Bromofluorobenzene		95.7 %		70-130	1916025	04/18/19	04/18/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1916025	04/18/19	04/18/19	EPA 8015D	
Diesel Range Organics (C10-C28)	140	25.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
Oil Range Organics (C28-C40)	64.1	50.0	mg/kg	1	1916036	04/18/19	04/19/19	EPA 8015D	
Surrogate: n-Nonane		111 %		50-200	1916036	04/18/19	04/19/19	EPA 8015D	
Surrogate: 1,2-Dichloroethane-d4		95.3 %		70-130	1916025	04/18/19	04/18/19	EPA 8015D	
Surrogate: Toluene-d8		99.2 %		70-130	1916025	04/18/19	04/18/19	EPA 8015D	
Surrogate: Bromofluorobenzene		95.7 %		70-130	1916025	04/18/19	04/18/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	76.7	20.0	mg/kg	1	1916033	04/18/19	04/19/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/24/19 12:10

**Extended South Wall (8'-18')
 P904121-01 (Solid)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
Toluene	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
Ethylbenzene	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
p,m-Xylene	ND	0.0500	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
o-Xylene	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
Total Xylenes	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		101 %		50-150	1917001	04/22/19	04/23/19	EPA 8021B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg	1	1917012	04/22/19	04/23/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1917012	04/22/19	04/23/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		97.8 %		50-150	1917001	04/22/19	04/23/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		94.9 %		50-200	1917012	04/22/19	04/23/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	96.4	20.0	mg/kg	1	1917011	04/22/19	04/22/19	EPA 300.0/9056A	
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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/24/19 12:10

**Extended East Wall (8'-18')
P904121-02 (Solid)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
Toluene	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
Ethylbenzene	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
p,m-Xylene	ND	0.0500	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
o-Xylene	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
Total Xylenes	ND	0.0250	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		102 %		50-150	1917001	04/22/19	04/23/19	EPA 8021B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1917001	04/22/19	04/23/19	EPA 8015D	
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg	1	1917012	04/22/19	04/23/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1917012	04/22/19	04/23/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		96.7 %		50-150	1917001	04/22/19	04/23/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		97.1 %		50-200	1917012	04/22/19	04/23/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	56.5	20.0	mg/kg	1	1917011	04/22/19	04/22/19	EPA 300.0/9056A	
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Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____ 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.	Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Page 10 of 10

TREATED SOIL

REMEDIATION

BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/26/19 15:28

TSP-1
P904125-01 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	ND	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
Toluene	0.199	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
Ethylbenzene	0.0690	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
p,m-Xylene	1.39	0.0500	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
o-Xylene	0.337	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
Total Xylenes	1.72	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		101 %		70-130	1917033	04/25/19	04/26/19	EPA 8260B	
Surrogate: Toluene-d8		102 %		70-130	1917033	04/25/19	04/26/19	EPA 8260B	
Surrogate: Bromofluorobenzene		90.8 %		70-130	1917033	04/25/19	04/26/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	43.5	20.0	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8015D	
Diesel Range Organics (C10-C28)	515	25.0	mg/kg	1	1917028	04/25/19	04/25/19	EPA 8015D	
Oil Range Organics (C28-C40)	106	50.0	mg/kg	1	1917028	04/25/19	04/25/19	EPA 8015D	
Surrogate: n-Nonane		109 %		50-200	1917028	04/25/19	04/25/19	EPA 8015D	
Surrogate: 1,2-Dichloroethane-d4		101 %		70-130	1917033	04/25/19	04/26/19	EPA 8015D	
Surrogate: Toluene-d8		102 %		70-130	1917033	04/25/19	04/26/19	EPA 8015D	
Surrogate: Bromofluorobenzene		90.8 %		70-130	1917033	04/25/19	04/26/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	64.1	20.0	mg/kg	1	1917029	04/25/19	04/25/19	EPA 300.0/9056A	
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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/26/19 15:28

TSP-2
P904125-02 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	ND	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
Toluene	0.235	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
Ethylbenzene	0.120	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
p,m-Xylene	2.70	0.0500	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
o-Xylene	0.663	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
Total Xylenes	3.36	0.0250	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8260B	
Surrogate: 1,2-Dichloroethane-d4		99.3 %		70-130	1917033	04/25/19	04/26/19	EPA 8260B	
Surrogate: Toluene-d8		105 %		70-130	1917033	04/25/19	04/26/19	EPA 8260B	
Surrogate: Bromofluorobenzene		86.2 %		70-130	1917033	04/25/19	04/26/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	75.7	20.0	mg/kg	1	1917033	04/25/19	04/26/19	EPA 8015D	
Diesel Range Organics (C10-C28)	285	25.0	mg/kg	1	1917028	04/25/19	04/25/19	EPA 8015D	
Oil Range Organics (C28-C40)	87.9	50.0	mg/kg	1	1917028	04/25/19	04/25/19	EPA 8015D	
Surrogate: n-Nonane		102 %		50-200	1917028	04/25/19	04/25/19	EPA 8015D	
Surrogate: 1,2-Dichloroethane-d4		99.3 %		70-130	1917033	04/25/19	04/26/19	EPA 8015D	
Surrogate: Toluene-d8		105 %		70-130	1917033	04/25/19	04/26/19	EPA 8015D	
Surrogate: Bromofluorobenzene		86.2 %		70-130	1917033	04/25/19	04/26/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	61.5	20.0	mg/kg	1	1917029	04/25/19	04/25/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/30/19 16:28

TSP-3
P904128-01 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	0.0337	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
Toluene	0.899	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
Ethylbenzene	0.428	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
p,m-Xylene	7.40	0.0500	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
o-Xylene	1.97	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
Total Xylenes	9.38	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		93.6 %		50-150	1917045	04/26/19	04/28/19	EPA 8021B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	124	20.0	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8015D	
Diesel Range Organics (C10-C28)	505	25.0	mg/kg	1	1917048	04/29/19	04/29/19	EPA 8015D	
Oil Range Organics (C28-C40)	127	50.0	mg/kg	1	1917048	04/29/19	04/29/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		104 %		50-150	1917045	04/26/19	04/28/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		130 %		50-200	1917048	04/29/19	04/29/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	62.1	20.0	mg/kg	1	1917042	04/26/19	04/26/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/30/19 16:28

TSP-4
P904128-02 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
Toluene	0.495	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
Ethylbenzene	0.239	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
p,m-Xylene	4.11	0.0500	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
o-Xylene	1.14	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
Total Xylenes	5.25	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		99.3 %		50-150	1917045	04/26/19	04/28/19	EPA 8021B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	69.6	20.0	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8015D	
Diesel Range Organics (C10-C28)	284	25.0	mg/kg	1	1917043	04/26/19	04/27/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1917043	04/26/19	04/27/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		101 %		50-150	1917045	04/26/19	04/28/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		106 %		50-200	1917043	04/26/19	04/27/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	64.8	20.0	mg/kg	1	1917042	04/26/19	04/26/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/30/19 16:28

TSP-5
P904128-03 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	0.103	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
Toluene	3.28	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
Ethylbenzene	0.957	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
p,m-Xylene	14.1	0.0500	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
o-Xylene	3.37	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
Total Xylenes	17.4	0.0250	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		97.5 %		50-150	1917045	04/26/19	04/28/19	EPA 8021B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	202	20.0	mg/kg	1	1917045	04/26/19	04/28/19	EPA 8015D	
Diesel Range Organics (C10-C28)	605	25.0	mg/kg	1	1917043	04/26/19	04/27/19	EPA 8015D	
Oil Range Organics (C28-C40)	112	50.0	mg/kg	1	1917043	04/26/19	04/27/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		107 %		50-150	1917045	04/26/19	04/28/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		128 %		50-200	1917043	04/26/19	04/27/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	60.6	20.0	mg/kg	1	1917042	04/26/19	04/26/19	EPA 300.0/9056A	
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 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/02/19 15:59

TSP-6
P904140-01 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	ND	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Toluene	0.0535	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Ethylbenzene	ND	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
p,m-Xylene	3.37	0.0500	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
o-Xylene	1.13	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Total Xylenes	4.50	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		103 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Toluene-d8</i>		104 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Bromofluorobenzene</i>		93.8 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	72.5	20.0	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8015D	
Diesel Range Organics (C10-C28)	542	25.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
Oil Range Organics (C28-C40)	117	50.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		102 %		50-200	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		103 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Toluene-d8</i>		104 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Bromofluorobenzene</i>		93.8 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	60.6	20.0	mg/kg	1	1918018	04/30/19	05/01/19	EPA 300.0/9056A	
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 PO Box 22024
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 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/02/19 15:59

TSP-7
P904140-02 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	ND	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Toluene	0.114	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Ethylbenzene	0.0460	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
p,m-Xylene	3.19	0.0500	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
o-Xylene	0.948	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Total Xylenes	4.14	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		97.2 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Toluene-d8</i>		103 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Bromofluorobenzene</i>		95.7 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	68.6	20.0	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8015D	
Diesel Range Organics (C10-C28)	499	25.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
Oil Range Organics (C28-C40)	127	50.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		103 %		50-200	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		97.2 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Toluene-d8</i>		103 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Bromofluorobenzene</i>		95.7 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	71.7	20.0	mg/kg	1	1918018	04/30/19	05/01/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/02/19 15:59

TSP-8
P904140-03 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	ND	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Toluene	0.0755	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Ethylbenzene	0.0340	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
p,m-Xylene	2.02	0.0500	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
o-Xylene	0.616	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Total Xylenes	2.64	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Toluene-d8</i>		104 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Bromofluorobenzene</i>		97.7 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	54.6	20.0	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8015D	
Diesel Range Organics (C10-C28)	449	25.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
Oil Range Organics (C28-C40)	109	50.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		99.2 %		50-200	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Toluene-d8</i>		104 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Bromofluorobenzene</i>		97.7 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	72.2	20.0	mg/kg	1	1918018	04/30/19	05/01/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/02/19 15:59

TSP-9
P904140-04 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	ND	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Toluene	0.0750	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Ethylbenzene	0.0265	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
p,m-Xylene	1.77	0.0500	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
o-Xylene	0.551	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Total Xylenes	2.33	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Toluene-d8</i>		104 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Bromofluorobenzene</i>		95.1 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	49.2	20.0	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8015D	
Diesel Range Organics (C10-C28)	398	25.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
Oil Range Organics (C28-C40)	101	50.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		108 %		50-200	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Toluene-d8</i>		104 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Bromofluorobenzene</i>		95.1 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	67.3	20.0	mg/kg	1	1918018	04/30/19	05/01/19	EPA 300.0/9056A	
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 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/02/19 15:59

TSP-10
P904140-05 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organic Compounds by 8260

Benzene	ND	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Toluene	0.805	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Ethylbenzene	0.230	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
p,m-Xylene	4.75	0.0500	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
o-Xylene	1.25	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
Total Xylenes	6.00	0.0250	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Toluene-d8</i>		106 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	
<i>Surrogate: Bromofluorobenzene</i>		95.0 %		70-130	1918013	04/30/19	05/01/19	EPA 8260B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	107	20.0	mg/kg	1	1918013	04/30/19	05/01/19	EPA 8015D	
Diesel Range Organics (C10-C28)	575	25.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
Oil Range Organics (C28-C40)	149	50.0	mg/kg	1	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		104 %		50-200	1918024	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Toluene-d8</i>		106 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	
<i>Surrogate: Bromofluorobenzene</i>		95.0 %		70-130	1918013	04/30/19	05/01/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	58.1	20.0	mg/kg	1	1918018	04/30/19	05/01/19	EPA 300.0/9056A	
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 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/03/19 15:16

TSP-11
P905005-01 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	0.0309	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Toluene	0.790	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Ethylbenzene	0.315	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
p,m-Xylene	7.79	0.0500	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
o-Xylene	2.10	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Total Xylenes	9.89	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		97.4 %		50-150	1918032	05/01/19	05/02/19	EPA 8021B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	123	20.0	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8015D	
Diesel Range Organics (C10-C28)	767	25.0	mg/kg	1	1918033	05/02/19	05/02/19	EPA 8015D	
Oil Range Organics (C28-C40)	153	50.0	mg/kg	1	1918033	05/02/19	05/02/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		102 %		50-150	1918032	05/01/19	05/02/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		178 %		50-200	1918033	05/02/19	05/02/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	49.5	20.0	mg/kg	1	1918037	05/02/19	05/02/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/03/19 15:16

TSP-12
P905005-02 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	0.0335	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Toluene	0.958	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Ethylbenzene	0.357	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
p,m-Xylene	7.82	0.0500	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
o-Xylene	2.17	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Total Xylenes	9.99	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		95.5 %		50-150	1918032	05/01/19	05/02/19	EPA 8021B	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	137	20.0	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8015D	
Diesel Range Organics (C10-C28)	535	25.0	mg/kg	1	1918033	05/02/19	05/02/19	EPA 8015D	
Oil Range Organics (C28-C40)	95.8	50.0	mg/kg	1	1918033	05/02/19	05/02/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		103 %		50-150	1918032	05/01/19	05/02/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		112 %		50-200	1918033	05/02/19	05/02/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	49.9	20.0	mg/kg	1	1918037	05/02/19	05/02/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/03/19 15:16

TSP-13
P905005-03 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	0.0259	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Toluene	0.725	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Ethylbenzene	0.296	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
p,m-Xylene	7.98	0.0500	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
o-Xylene	2.19	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Total Xylenes	10.2	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		<i>103 %</i>		<i>50-150</i>	<i>1918032</i>	<i>05/01/19</i>	<i>05/02/19</i>	<i>EPA 8021B</i>	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	115	20.0	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8015D	
Diesel Range Organics (C10-C28)	667	25.0	mg/kg	1	1918033	05/02/19	05/02/19	EPA 8015D	
Oil Range Organics (C28-C40)	112	50.0	mg/kg	1	1918033	05/02/19	05/02/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		<i>103 %</i>		<i>50-150</i>	<i>1918032</i>	<i>05/01/19</i>	<i>05/02/19</i>	<i>EPA 8015D</i>	
<i>Surrogate: n-Nonane</i>		<i>108 %</i>		<i>50-200</i>	<i>1918033</i>	<i>05/02/19</i>	<i>05/02/19</i>	<i>EPA 8015D</i>	

Anions by 300.0/9056A

Chloride	50.1	20.0	mg/kg	1	1918037	05/02/19	05/02/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/03/19 15:16

TSP-14
P905005-04 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Toluene	0.172	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Ethylbenzene	0.0926	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
p,m-Xylene	3.17	0.0500	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
o-Xylene	1.01	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
Total Xylenes	4.17	0.0250	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		<i>103 %</i>		<i>50-150</i>	<i>1918032</i>	<i>05/01/19</i>	<i>05/02/19</i>	<i>EPA 8021B</i>	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	58.1	20.0	mg/kg	1	1918032	05/01/19	05/02/19	EPA 8015D	
Diesel Range Organics (C10-C28)	511	25.0	mg/kg	1	1918033	05/02/19	05/02/19	EPA 8015D	
Oil Range Organics (C28-C40)	103	50.0	mg/kg	1	1918033	05/02/19	05/02/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		<i>98.6 %</i>		<i>50-150</i>	<i>1918032</i>	<i>05/01/19</i>	<i>05/02/19</i>	<i>EPA 8015D</i>	
<i>Surrogate: n-Nonane</i>		<i>99.7 %</i>		<i>50-200</i>	<i>1918033</i>	<i>05/02/19</i>	<i>05/02/19</i>	<i>EPA 8015D</i>	

Anions by 300.0/9056A

Chloride	53.5	20.0	mg/kg	1	1918037	05/02/19	05/02/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/07/19 12:26

TSP-15
P905015-01 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1918046	05/03/19	05/06/19	EPA 8021B	
Toluene	0.123	0.0250	mg/kg	1	1918046	05/03/19	05/06/19	EPA 8021B	
Ethylbenzene	0.0832	0.0250	mg/kg	1	1918046	05/03/19	05/06/19	EPA 8021B	
p,m-Xylene	2.10	0.0500	mg/kg	1	1918046	05/03/19	05/06/19	EPA 8021B	
o-Xylene	0.647	0.0250	mg/kg	1	1918046	05/03/19	05/06/19	EPA 8021B	
Total Xylenes	2.74	0.0250	mg/kg	1	1918046	05/03/19	05/06/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		<i>104 %</i>		<i>50-150</i>	<i>1918046</i>	<i>05/03/19</i>	<i>05/06/19</i>	<i>EPA 8021B</i>	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	40.5	20.0	mg/kg	1	1918046	05/03/19	05/06/19	EPA 8015D	
Diesel Range Organics (C10-C28)	318	25.0	mg/kg	1	1918040	05/03/19	05/03/19	EPA 8015D	
Oil Range Organics (C28-C40)	75.1	50.0	mg/kg	1	1918040	05/03/19	05/03/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		<i>97.0 %</i>		<i>50-150</i>	<i>1918046</i>	<i>05/03/19</i>	<i>05/06/19</i>	<i>EPA 8015D</i>	
<i>Surrogate: n-Nonane</i>		<i>118 %</i>		<i>50-200</i>	<i>1918040</i>	<i>05/03/19</i>	<i>05/03/19</i>	<i>EPA 8015D</i>	

Anions by 300.0/9056A

Chloride	66.9	20.0	mg/kg	1	1918045	05/03/19	05/03/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/09/19 15:06

TSP-16
P905022-01 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
Toluene	0.567	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
Ethylbenzene	0.182	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
p,m-Xylene	3.74	0.0500	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
o-Xylene	1.07	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
Total Xylenes	4.82	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		<i>103 %</i>		<i>50-150</i>	<i>1919011</i>	<i>05/07/19</i>	<i>05/08/19</i>	<i>EPA 8021B</i>	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	63.4	20.0	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8015D	
Diesel Range Organics (C10-C28)	653	25.0	mg/kg	1	1919016	05/08/19	05/08/19	EPA 8015D	
Oil Range Organics (C28-C40)	99.5	50.0	mg/kg	1	1919016	05/08/19	05/08/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		<i>99.9 %</i>		<i>50-150</i>	<i>1919011</i>	<i>05/07/19</i>	<i>05/08/19</i>	<i>EPA 8015D</i>	
<i>Surrogate: n-Nonane</i>		<i>118 %</i>		<i>50-200</i>	<i>1919016</i>	<i>05/08/19</i>	<i>05/08/19</i>	<i>EPA 8015D</i>	

Anions by 300.0/9056A

Chloride	57.4	20.0	mg/kg	1	1919012	05/07/19	05/07/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/09/19 15:06

TSP-17
P905022-02 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	0.0696	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
Toluene	1.74	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
Ethylbenzene	0.442	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
p,m-Xylene	8.08	0.0500	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
o-Xylene	2.14	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
Total Xylenes	10.2	0.0250	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		<i>100 %</i>		<i>50-150</i>	<i>1919011</i>	<i>05/07/19</i>	<i>05/08/19</i>	<i>EPA 8021B</i>	

Nonhalogenated Organics by 8015

Gasoline Range Organics (C6-C10)	120	20.0	mg/kg	1	1919011	05/07/19	05/08/19	EPA 8015D	
Diesel Range Organics (C10-C28)	570	25.0	mg/kg	1	1919016	05/08/19	05/08/19	EPA 8015D	
Oil Range Organics (C28-C40)	100	50.0	mg/kg	1	1919016	05/08/19	05/08/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		<i>103 %</i>		<i>50-150</i>	<i>1919011</i>	<i>05/07/19</i>	<i>05/08/19</i>	<i>EPA 8015D</i>	
<i>Surrogate: n-Nonane</i>		<i>102 %</i>		<i>50-200</i>	<i>1919016</i>	<i>05/08/19</i>	<i>05/08/19</i>	<i>EPA 8015D</i>	

Anions by 300.0/9056A

Chloride	40.1	20.0	mg/kg	1	1919012	05/07/19	05/07/19	EPA 300.0/9056A	
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Page 11 of 11

Page 12 of 12

Client: <u>BPX ENERGY</u> Project: <u>HARDIE LS 1A</u> Project Manager: <u>STEVE MOSKAL</u> Address: _____ City, State, Zip: _____ Phone: <u>505-330-9179</u> Email: _____					Report Attention Report due by: <u>MAY 1, 2019</u> Attention: <u>STEVE MOSKAL / JEFF BLAGG</u> Address: _____ City, State, Zip: _____ Phone: <u>320-1183</u> Email: _____					Lab Use Only Lab WO# <u>P9041140</u> Job Number <u>03143-0424</u> Analysis and Method DRO/DRO by 8015 ☒ GRO/DRO by 8015 ☒ BTEX by 8021 ☒ VOC by 8260 ☐ Metals 6010 ☐ Chloride 300.0 ☐ TPH 418.1 ☒							TAT 1D ☒ 3D ☐		EPA Program RCRA ☐ CWA ☐ SDWA ☐		
												State NM ☒ CO ☐ UT ☐ AZ ☐									
												Remarks									

Time Sampled	Date Sampled	Matrix	No Containers	Sample ID	Lab Number	DRO/DRO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	TPH 418.1							
1324	4/30/2019	SOIL	1	TSP-6	1	X	X	X			X	☒							
1327			1	TSP-7	2	X	X	X			X								
1331			1	TSP-8	3	X	X	X			X								
1335			1	TSP-9	4	X	X	X			X								
1338			1	TSP-10	5	X	X	X			X								

Additional Instructions: BILL BPX CONTACT: STEVE MOSKAL
P.O. ALREADY PROVIDED. Voice in cooler

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: Jeff Blagg

Relinquished by: (Signature) <u>Jeff Blagg</u>		Date <u>4/30/2019</u>	Time <u>1450</u>	Received by: (Signature) <u>Jeff Blagg</u>		Date <u>4/30/19</u>	Time <u>14:50</u>	Lab Use Only Received on ice: <u>Y</u> / N T1 _____ T2 _____ T3 _____ AVG Temp °C <u>4</u>	
Relinquished by: (Signature) _____		Date _____	Time _____	Received by: (Signature) _____		Date _____	Time _____		

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

te: 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 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.

Client: <u>BPX ENERGY</u> Project: <u>HARDIE LS 1A</u> Project Manager: <u>STEVE MOSKAL</u> Address: _____ City, State, Zip: _____ Phone: <u>505-330-9179</u> Email: _____	Report Attention Report due by: <u>MAY 2, 2019</u> Attention: <u>STEVE MOSKAL / JEFF BLAUG</u> Address: _____ City, State, Zip: _____ Phone: <u>505-320-1193</u> Email: _____	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="8">Lab Use Only</th> <th colspan="2">TAT</th> <th colspan="3">EPA Program</th> </tr> <tr> <td colspan="4">Lab WO# <u>P905005</u></td> <td colspan="4">Job Number <u>03143-0424</u></td> <td>1D</td> <td>3D</td> <td>RCRA</td> <td>CWA</td> <td>SDWA</td> </tr> <tr> <td colspan="8" style="text-align: center;">Analysis and Method</td> <td colspan="5" style="text-align: center;">State</td> </tr> <tr> <td>DRO/ORO by 8015</td> <td>GRO/DRO by 8015</td> <td>BTEX by 8021</td> <td>VOC by 8260</td> <td>Metals 6010</td> <td>Chloride 300.0</td> <td>TPH 418.1</td> <td></td> <td></td> <td></td> <td>NM</td> <td>CO</td> <td>UT</td> <td>AZ</td> </tr> <tr> <td>X</td> <td>X</td> <td>X</td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> </table>	Lab Use Only								TAT		EPA Program			Lab WO# <u>P905005</u>				Job Number <u>03143-0424</u>				1D	3D	RCRA	CWA	SDWA	Analysis and Method								State					DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	TPH 418.1				NM	CO	UT	AZ	X	X	X			X					X			
Lab Use Only								TAT		EPA Program																																																											
Lab WO# <u>P905005</u>				Job Number <u>03143-0424</u>				1D	3D	RCRA	CWA	SDWA																																																									
Analysis and Method								State																																																													
DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	TPH 418.1				NM	CO	UT	AZ																																																								
X	X	X			X					X																																																											

Time Sampled	Date Sampled	Matrix	No Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	TPH 418.1						Remarks
1334	5/1/2019	SOIL	1	TSP-11	1	X	X	X			X							
1338	1	1	1	TSP-12	2	X	X	X			X							
1342	1	1	1	TSP-13	3	X	X	X			X							
1346	1	1	1	TSP-14	4	X	X	X			X							

Additional Instructions: <u>Bill BPX</u> <u>CONTACT: Steve Moskal</u> <u>P.O. For this Project</u>									
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: <u>Jeff Blaug</u>									
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time	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.	
<u>Jeff Blaug</u>		5/1/2019	1451	<u>[Signature]</u>		5/1/19	1451	Lab Use Only Received on ice: <u>(Y) N</u> T1 _____ T2 _____ T3 _____ AVG Temp °C <u>4.0</u>	
Relinquished by: (Signature)		Date	Time	Received by: (Signature)		Date	Time	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.	

Client: <u>BPX ENERGY</u> Project: <u>HARDIE LS 1A</u> Project Manager: <u>STEVE MOSKAL</u> Address: _____ City, State, Zip: _____ Phone: <u>505-330-9179</u> Email: _____					Report Attention Report due by: <u>MAY 6, 2019</u> Attention: <u>STEVE MOSKAL / JEFF BLAGG</u> Address: _____ City, State, Zip: _____ Phone: <u>505-320-1103</u> Email: _____					Lab Use Only Lab WO# <u>P909615</u> Job Number <u>03143-0424</u> Analysis and Method DRO/ORO by 8015 ☒ GRO/DRO by 8015 ☒ BTEX by 8021 ☒ VOC by 8260 ☐ Metals 6010 ☐ Chloride 300.0 ☒ TPH 418.1 ☐								TAT 1D ☒ 3D ☐		EPA Program RCRA ☐ CWA ☐ SDWA ☐		
													State NM ☒ CO ☐ UT ☐ AZ ☐									
													Remarks									

Time Sampled	Date Sampled	Matrix	No Containers	Sample ID	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	TPH 418.1							
11/2	5/3/2019	SOIL	1	TSP-15	1	X	X	X			X								

Additional Instructions: Bill BPX - P.O. For this Project
CONTACT: Steve Moskal

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

Relinquished by: (Signature) Jeff Blagg Date 5/3/2019 Time 11:59 Received by: (Signature) Justin A. [Signature] Date 5-3-19 Time 11:59

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

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

Received on ice: Y / N Lab Use Only

T1 _____ T2 _____ T3 _____

AVG Temp °C 4

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.

Page 10 of 10

VADOSE ZONE

CONFIRMATION

July 2019 Email Correspondence

From: Nelson Velez
Sent: Monday, July 22, 2019 8:39 AM
To: Smith, Cory, EMNRD
Cc: Powell Brandon EMNRD, Steven Moskal, Jefferey Blagg
Subject: Notification of BPX - Hardie LS 001A Treated Stockpile Vadose Zone Sampling

All,

On behalf of BPX Energy Inc., Blagg Engineering, Inc. plans to conduct environmental sampling at the Hardie LS # 1A site this coming Thursday, July 25th or Friday, July 26th.

If you wish to witness this event, please contact Jeff Blagg or myself at your convenience. Thanks.

Incident #: cCS1801657853
API #: 300-45-22415
Legals: Unit Letter J, Section 26, T29N, R08W
GPS Coord.: 36.69402,-107.64330

Nelson J. Velez - Blagg Engr.

From: Steven Moskal
Sent: Wednesday, July 24, 2019 8:58 AM
To: Cory Smith - NMOCD, Adeloye, Abiodun - BLM
Cc: jeffcblagg@aol.com, blagg_njv@yahoo.com
Subject: Vadose Zone Sampling Plans

Cory,

Attached are the site maps for the vadose zone sampling scheduled for tomorrow and Friday.

For the Hardie LS 001A, we plan to split the two stockpile areas into 2 segments each, west and east in each area, for a total of four vadose zone samples, beginning at 8:00 AM tomorrow, 7/25. From there, we plan to move to the Wilch A 1, where the stockpile are will be split into 4 segments, the north half into 2, west and east, and the south half into north and south, for a total of four sample locations. We will then plan to move to the GCU Com H 180 for excavation closure sampling on the San Juan County owned surface.

On Friday, 7/26, we plan to sample the Day B 2B beginning at 10:00 AM. The stockpile area will be split into 4 equal segments, for a total of 4 samples. From there, the plan will be to mobilize to the historical landfarm area located at the Jennapah 1. Due to the unknown configuration of the landfarm area, the area on the north half of the well pad will be split into 4 equal sections, west, west central, east central and east, for a total of 4 samples.

All samples will be collected from the ground surface to a depth of approximately 8 inches. Each area will be sampled as composites samples, with a total of 6-8 points for each sample segments, depending on the size of the area. If any visual changes are noted, the area will be reassessed and an alternative sample plan will be discussed prior to sample collection.

Let me know if you have questions.

Steve Moskal - *Environmental Coordinator*
BP America Production Co. - *bpx energy - WBU*
1199 Main Ave. | Suite 101 | Durango | CO | 81301

From: Smith, Cory, EMNRD
Sent: Wednesday, July 24, 2019 11:17 AM
To: Steven Moskal; Adeloye, Abiodun - BLM
Cc: Blagg, Jefferey; 'blagg_njv@yahoo.com'
Subject: RE: Vadose Zone Sampling Plans

Steve,

So on average approximately 1,000 sqft per 5pt composite sample?

Cory Smith - Environmental Specialist
Oil Conservation Division | Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410

From: Steven Moskal
Sent: Wednesday, July 24, 2019 11:18 AM
To: Cory Smith - NMOCD, Adeloye, Abiodun - BLM
Cc: jeffcblagg@aol.com, blagg_njv@yahoo.com
Subject: RE: Vadose Zone Sampling Plans

Yes, on the square footage, but with 6-8 points per composite, unless you'd like to see 5 points.

Steve Moskal - *Environmental Coordinator*
BP America Production Co. - bpx energy - WBU
1199 Main Ave. | Suite 101 | Durango | CO | 81301

From: Smith, Cory, EMNRD
Sent: Wednesday, July 24, 2019 11:19 AM
To: Steven Moskal; Adeloye, Abiodun - BLM
Cc: Blagg, Jefferey; 'blagg_njv@yahoo.com'
Subject: RE: Vadose Zone Sampling Plans

Steve,

6-8 is fine.. OCD approves the proposed sampling plan for below email.

Please include this approval in your final closure reports.

Cory Smith - Environmental Specialist
Oil Conservation Division | Energy, Minerals, & Natural Resources
1000 Rio Brazos, Aztec, NM 87410

BP - HARDIE LS 001A

(J) Section 26, T29N, R8W
API #: 3004522415

Imagery date: 10/5/2016
WH GPS Coord.: 36.694010,-107.643302



~83 ft., N89E
from Well Head

~142 ft., S88E
from Well Head

**TREATED
STOCKPILE
PERIMETERS**

TSP-VZ #3

TSP-VZ #4

~97 ft., S43E
from Well Head

~170 ft., S58E
from Well Head

TSP-VZ #1

TSP-VZ #2



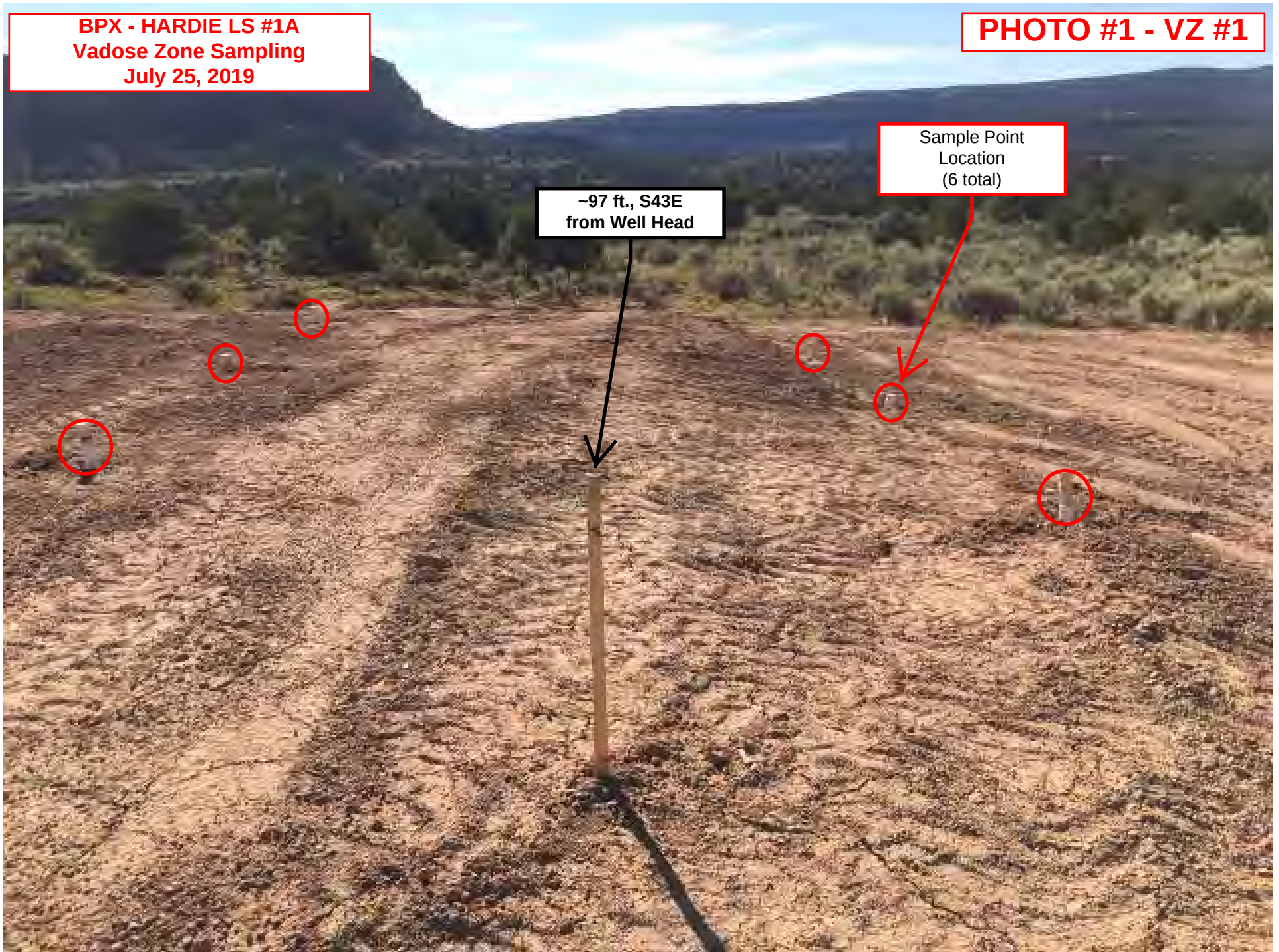
60 ft

BPX - HARDIE LS #1A
Vadose Zone Sampling
July 25, 2019

PHOTO #1 - VZ #1

~97 ft., S43E
from Well Head

Sample Point
Location
(6 total)

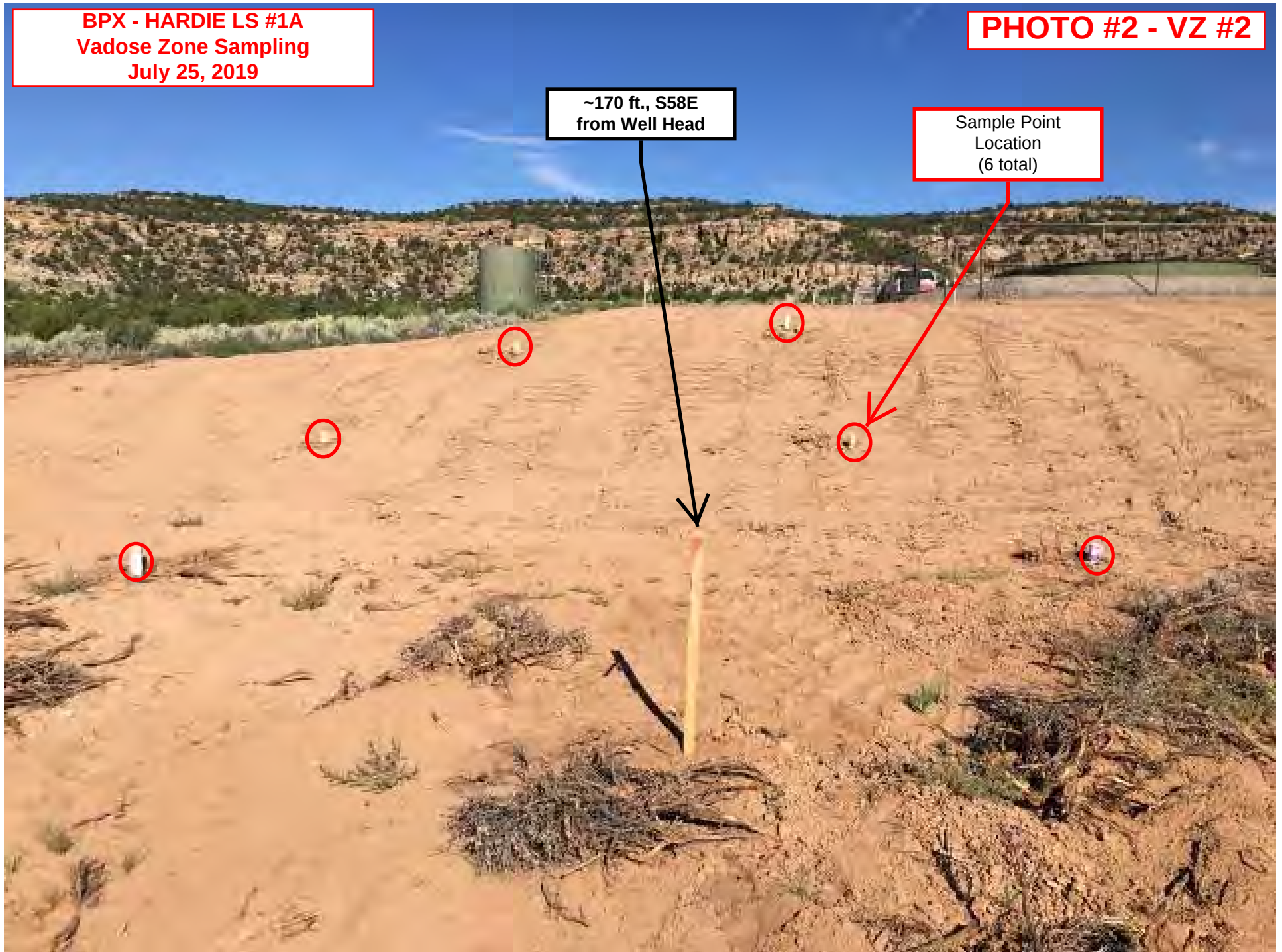


BPX - HARDIE LS #1A
Vadose Zone Sampling
July 25, 2019

PHOTO #2 - VZ #2

~170 ft., S58E
from Well Head

Sample Point
Location
(6 total)

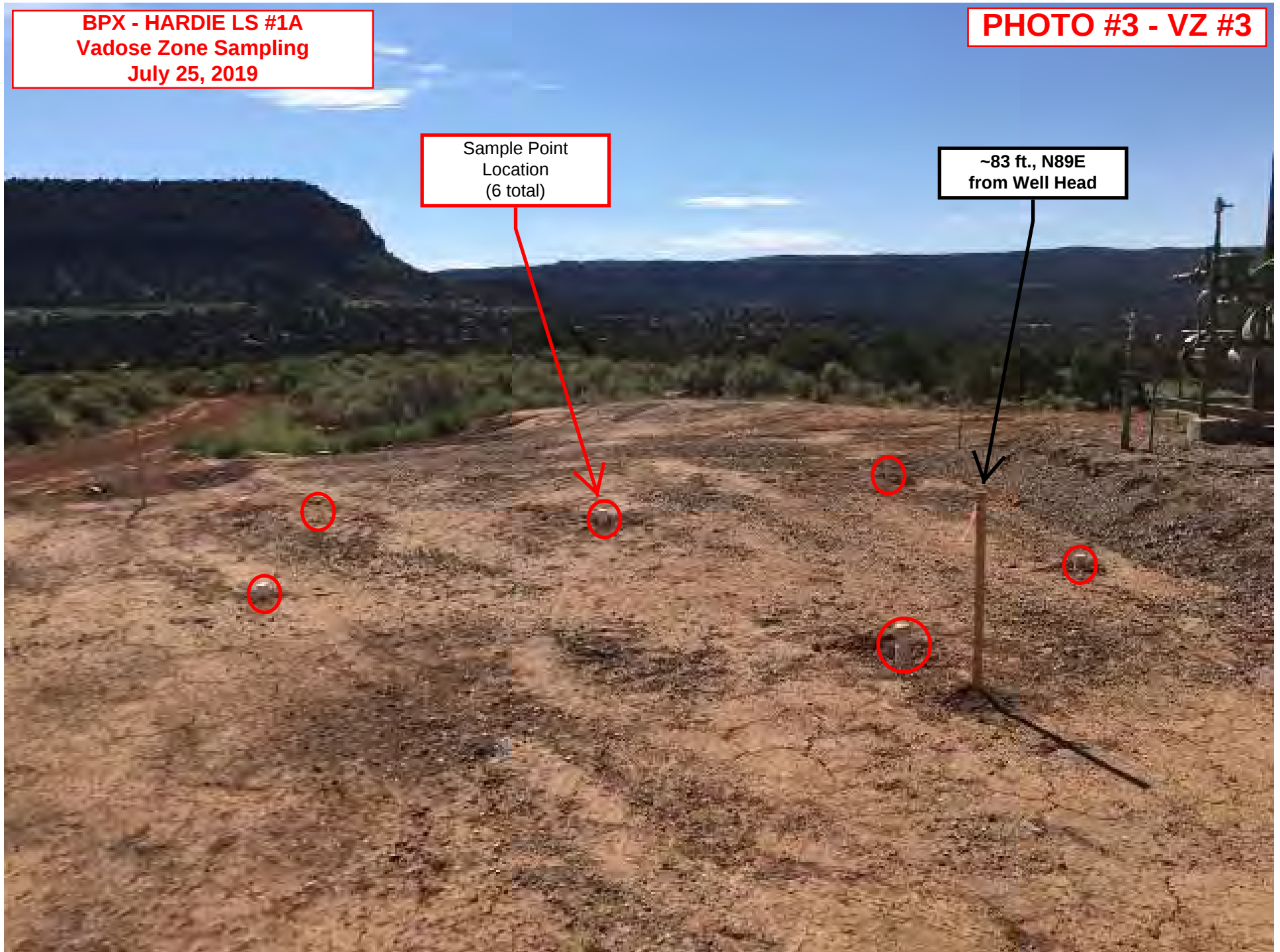


BPX - HARDIE LS #1A
Vadose Zone Sampling
July 25, 2019

PHOTO #3 - VZ #3

Sample Point
Location
(6 total)

~83 ft., N89E
from Well Head

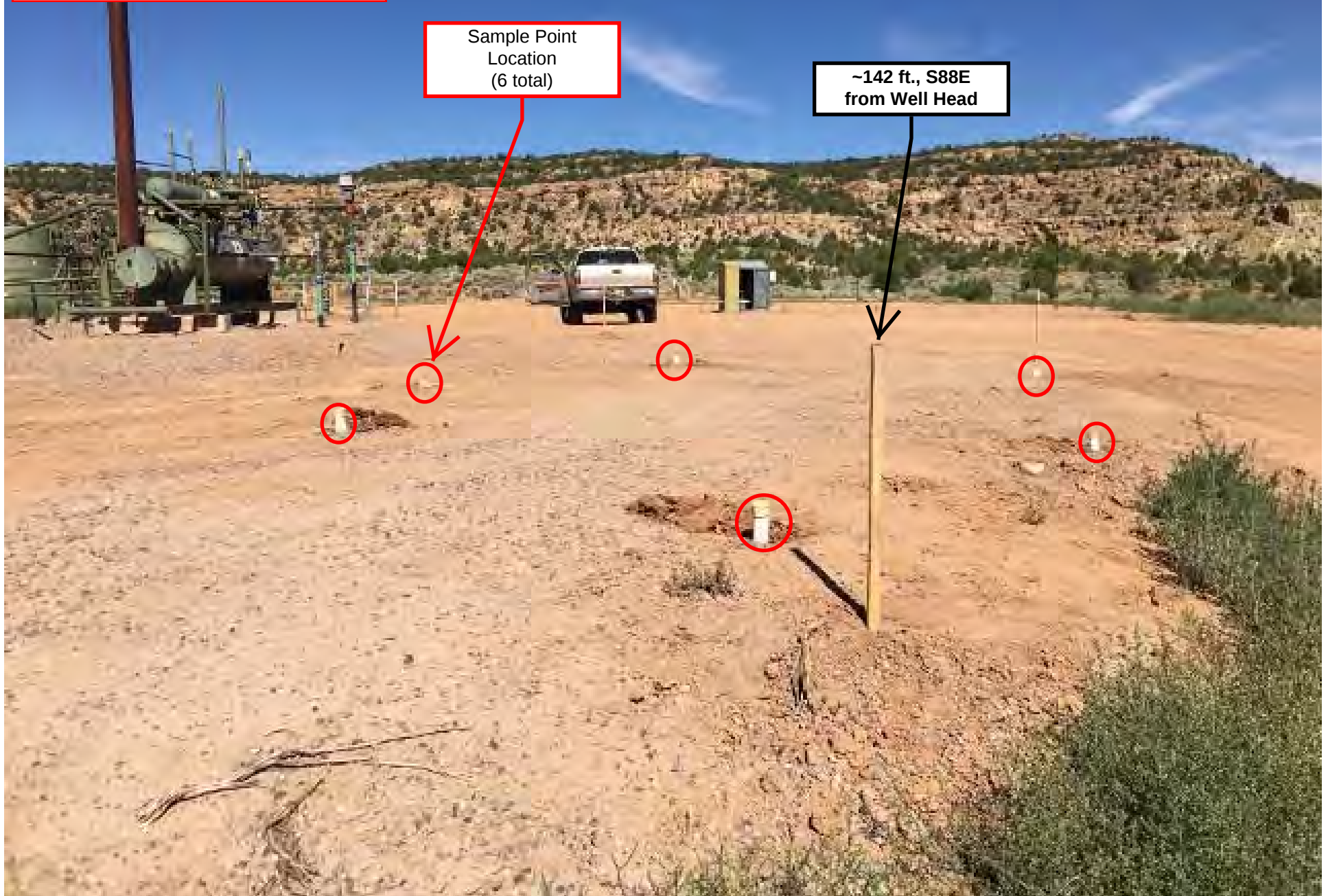


BPX - HARDIE LS #1A
Vadose Zone Sampling
July 25, 2019

PHOTO #4 - VZ #4

Sample Point
Location
(6 total)

~142 ft., S88E
from Well Head



BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 08/02/19 16:56

TSP- VZ #1
P907096-01 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/01/19	EPA 8021B	
Toluene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/01/19	EPA 8021B	
Ethylbenzene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/01/19	EPA 8021B	
p,m-Xylene	ND	0.0500	mg/kg	1	1931030	07/31/19	08/01/19	EPA 8021B	
o-Xylene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/01/19	EPA 8021B	
Total Xylenes	ND	0.0250	mg/kg	1	1931030	07/31/19	08/01/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		108 %		50-150	1931030	07/31/19	08/01/19	EPA 8021B	

Nonhalogenated Organics by 8015 - DRO/ORO

Diesel Range Organics (C10-C28)	283	25.0	mg/kg	1	1931038	07/31/19	07/31/19	EPA 8015D	
Oil Range Organics (C28-C40)	80.7	50.0	mg/kg	1	1931038	07/31/19	07/31/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		76.6 %		50-200	1931038	07/31/19	07/31/19	EPA 8015D	

Nonhalogenated Organics by 8015 - GRO

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1931030	07/31/19	08/01/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		94.2 %		50-150	1931030	07/31/19	08/01/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	37.7	20.0	mg/kg	1	1931040	07/31/19	08/01/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 08/02/19 16:56

TSP- VZ #2
P907096-02 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
Toluene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
Ethylbenzene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
p,m-Xylene	ND	0.0500	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
o-Xylene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
Total Xylenes	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		108 %		50-150	1931030	07/31/19	08/02/19	EPA 8021B	

Nonhalogenated Organics by 8015 - DRO/ORO

Diesel Range Organics (C10-C28)	186	25.0	mg/kg	1	1931038	07/31/19	07/31/19	EPA 8015D	
Oil Range Organics (C28-C40)	51.5	50.0	mg/kg	1	1931038	07/31/19	07/31/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		73.8 %		50-200	1931038	07/31/19	07/31/19	EPA 8015D	

Nonhalogenated Organics by 8015 - GRO

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		92.3 %		50-150	1931030	07/31/19	08/02/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	61.4	20.0	mg/kg	1	1931040	07/31/19	08/01/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 08/02/19 16:56

TSP- VZ #3
P907096-03 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
Toluene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
Ethylbenzene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
p,m-Xylene	ND	0.0500	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
o-Xylene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
Total Xylenes	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		108 %		50-150	1931030	07/31/19	08/02/19	EPA 8021B	

Nonhalogenated Organics by 8015 - DRO/ORO

Diesel Range Organics (C10-C28)	76.7	25.0	mg/kg	1	1931038	07/31/19	07/31/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1931038	07/31/19	07/31/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		75.4 %		50-200	1931038	07/31/19	07/31/19	EPA 8015D	

Nonhalogenated Organics by 8015 - GRO

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		93.3 %		50-150	1931030	07/31/19	08/02/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	44.7	20.0	mg/kg	1	1931040	07/31/19	08/01/19	EPA 300.0/9056A	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 08/02/19 16:56

TSP- VZ #4
P907096-04 (Solid)

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes

Volatile Organics by EPA 8021

Benzene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
Toluene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
Ethylbenzene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
p,m-Xylene	ND	0.0500	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
o-Xylene	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
Total Xylenes	ND	0.0250	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8021B	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>		108 %		50-150	1931030	07/31/19	08/02/19	EPA 8021B	

Nonhalogenated Organics by 8015 - DRO/ORO

Diesel Range Organics (C10-C28)	30.0	25.0	mg/kg	1	1931038	07/31/19	07/31/19	EPA 8015D	
Oil Range Organics (C28-C40)	ND	50.0	mg/kg	1	1931038	07/31/19	07/31/19	EPA 8015D	
<i>Surrogate: n-Nonane</i>		74.7 %		50-200	1931038	07/31/19	07/31/19	EPA 8015D	

Nonhalogenated Organics by 8015 - GRO

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg	1	1931030	07/31/19	08/02/19	EPA 8015D	
<i>Surrogate: 1-Chloro-4-fluorobenzene-FID</i>		94.4 %		50-150	1931030	07/31/19	08/02/19	EPA 8015D	

Anions by 300.0/9056A

Chloride	ND	20.0	mg/kg	1	1931040	07/31/19	08/01/19	EPA 300.0/9056A	
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Project Information

Chain of Custody

Page 1 of 1

Client: BPX Energy Inc.

Project: **Hardie LS #1A**

Project Manager: Steve Moskal - BPX Energy Inc.

Address: 1199 Main Ave., Suite 101

City, State, Zip Durango, CO 81301

Phone: (505) 330-9179 - S. Moskal

Email: See "additional instructions" below

Report Attention

Report due by: **8/02/2019**

Attention: Steve Moskal

Address:

City, State, Zip

Phone: N. Velez (505) 320-3489; S. Moskal (505) 330-9179

Email: See "additional instructions" below

Lab Use Only

TAT

EPA Program

Lab WO#

Job Number

1D

3D

RCRA

CWA

SDWA

P9107096

03143-0424

Analysis and Method

State

NM

CO

UT

AZ

X

Remarks

Time Sampled	Date Sampled	Matrix	No Containers	Sample ID	Lab Number	DRO/DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Metals 6010	Chloride 300.0	TPH 418.1							
1120	7/25/19	SOIL	1-4 oz.	TSP - VZ #1	1	X	X	X			X								
1150	7/25/19	SOIL	1-4 oz.	TSP - VZ #2	2	X	X	X			X								
1210	7/25/19	SOIL	1-4 oz.	TSP - VZ #3	3	X	X	X			X								
1236	7/25/19	SOIL	1-4 oz.	TSP - VZ #4	4	X	X	X			X								

Additional Instructions: Send emails to: Steven.Moskal@bpx.com, jeffcblagg@aol.com, & blagg_njv@yahoo.com.
Use PO on file.

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: **Nelson Velez**

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	Lab Use Only
<i>[Signature]</i>	7/25/19	1536	<i>Raina Lopez</i>	7/25/19	15:36	Received on ice: P/N
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time	T1
						T2
						T3
						AVG Temp °C 4

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other **S**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.

LABORATORY

QUALITY CONTROL /

QUALITY ASSURANCE

Analytical Report

Report Summary

Client: BP America Production Co.

Chain Of Custody Number:

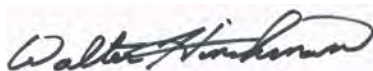
Samples Received: 12/17/2018 2:00:00PM

Job Number: 03143-0424

Work Order: P812036

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 12/20/18

Walter Hinchman, Laboratory Director



Date: 12/20/18

Tim Cain, Project Manager



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.
Statement of Data Authenticity: Envirotech, Inc, attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.
Envirotech, Inc, currently holds the appropriate and available Utah TNI certification NM009792018-1 for the data reported.

BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
12/20/18 12:57

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Release- Grab @17'	P812036-01A	Soil	12/17/18	12/17/18	Glass Jar, 4 oz.

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	12/20/18 12:57

Volatile Organics by EPA 8021 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1851002 - Purge and Trap EPA 5030A

Blank (1851002-BLK1)

Prepared: 12/17/18 0 Analyzed: 12/17/18 1

Benzene	ND	100	ug/kg							
Toluene	ND	100	"							
Ethylbenzene	ND	100	"							
p,m-Xylene	ND	200	"							
o-Xylene	ND	100	"							
Total Xylenes	ND	100	"							
Total BTEX	ND	100	"							
<i>Surrogate: 4-Bromochlorobenzene-PID</i>	7880		"	8000		98.5	50-150			

LCS (1851002-BS1)

Prepared: 12/17/18 0 Analyzed: 12/17/18 1

Benzene	5000	100	ug/kg	5000		100	70-130			
Toluene	5030	100	"	5000		101	70-130			
Ethylbenzene	5070	100	"	5000		101	70-130			
p,m-Xylene	10400	200	"	10000		104	70-130			
o-Xylene	5060	100	"	5000		101	70-130			
Total Xylenes	15500	100	"	15000		103	70-130			
<i>Surrogate: 4-Bromochlorobenzene-PID</i>	7860		"	8000		98.3	50-150			

Matrix Spike (1851002-MS1)

Source: P812030-01

Prepared: 12/17/18 0 Analyzed: 12/17/18 2

Benzene	4590	100	ug/kg	5000	ND	91.8	54.3-133			
Toluene	4600	100	"	5000	ND	92.0	61.4-130			
Ethylbenzene	4630	100	"	5000	ND	92.6	61.4-133			
p,m-Xylene	9470	200	"	10000	ND	94.7	63.3-131			
o-Xylene	4590	100	"	5000	ND	91.8	63.3-131			
Total Xylenes	14100	100	"	15000	ND	93.8	63.3-131			
<i>Surrogate: 4-Bromochlorobenzene-PID</i>	7900		"	8000		98.7	50-150			

Matrix Spike Dup (1851002-MSD1)

Source: P812030-01

Prepared: 12/17/18 0 Analyzed: 12/18/18 1

Benzene	4990	100	ug/kg	5000	ND	99.8	54.3-133	8.32	20	
Toluene	5030	100	"	5000	ND	101	61.4-130	8.93	20	
Ethylbenzene	5090	100	"	5000	ND	102	61.4-133	9.52	20	
p,m-Xylene	10400	200	"	10000	ND	104	63.3-131	9.63	20	
o-Xylene	5030	100	"	5000	ND	101	63.3-131	9.18	20	
Total Xylenes	15500	100	"	15000	ND	103	63.3-131	9.49	20	
<i>Surrogate: 4-Bromochlorobenzene-PID</i>	7780		"	8000		97.2	50-150			

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BP America Production Co. PO Box 22024 Tulsa OK, 74121-2024	Project Name: Hardie LS 1A Project Number: 03143-0424 Project Manager: Steve Moskal	Reported: 12/20/18 12:57
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Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1851002 - Purge and Trap EPA 5030A

Blank (1851002-BLK1)

Prepared: 12/17/18 0 Analyzed: 12/17/18 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.06		"	8.00		101	50-150			

LCS (1851002-BS2)

Prepared: 12/17/18 0 Analyzed: 12/17/18 1

Gasoline Range Organics (C6-C10)	45.4	20.0	mg/kg	50.0		90.9	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.29		"	8.00		104	50-150			

Matrix Spike (1851002-MS2)

Source: P812030-01

Prepared: 12/17/18 0 Analyzed: 12/17/18 2

Gasoline Range Organics (C6-C10)	48.3	20.0	mg/kg	50.0	ND	96.5	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.18		"	8.00		102	50-150			

Matrix Spike Dup (1851002-MSD2)

Source: P812030-01

Prepared: 12/17/18 0 Analyzed: 12/17/18 2

Gasoline Range Organics (C6-C10)	48.4	20.0	mg/kg	50.0	ND	96.9	70-130	0.347	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.31		"	8.00		104	50-150			

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	12/20/18 12:57

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1851004 - DRO Extraction EPA 3570

Blank (1851004-BLK1)

Prepared: 12/17/18 1 Analyzed: 12/18/18 0

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40+)	ND	50.0	"							
<i>Surrogate: n-Nonane</i>	<i>46.7</i>		<i>"</i>	<i>50.0</i>		<i>93.4</i>	<i>50-200</i>			

LCS (1851004-BS1)

Prepared: 12/17/18 1 Analyzed: 12/18/18 0

Diesel Range Organics (C10-C28)	460	25.0	mg/kg	500		92.0	38-132			
<i>Surrogate: n-Nonane</i>	<i>46.7</i>		<i>"</i>	<i>50.0</i>		<i>93.4</i>	<i>50-200</i>			

Matrix Spike (1851004-MS1)

Source: P812030-01

Prepared: 12/17/18 1 Analyzed: 12/18/18 0

Diesel Range Organics (C10-C28)	582	25.0	mg/kg	500	96.7	97.0	38-132			
<i>Surrogate: n-Nonane</i>	<i>48.6</i>		<i>"</i>	<i>50.0</i>		<i>97.2</i>	<i>50-200</i>			

Matrix Spike Dup (1851004-MSD1)

Source: P812030-01

Prepared: 12/17/18 1 Analyzed: 12/18/18 0

Diesel Range Organics (C10-C28)	628	25.0	mg/kg	500	96.7	106	38-132	7.66	20	
<i>Surrogate: n-Nonane</i>	<i>48.2</i>		<i>"</i>	<i>50.0</i>		<i>96.5</i>	<i>50-200</i>			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 12/20/18 12:57

Anions by 300.0/9056A - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1851015 - Wet Chemistry Preparation
Blank (1851015-BLK1)

Prepared & Analyzed: 12/18/18 1

Chloride	ND	20.0	mg/kg
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LCS (1851015-BS1)

Prepared & Analyzed: 12/18/18 1

Chloride	252	20.0	mg/kg	250	101	90-110
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Matrix Spike (1851015-MS1)
Source: P812027-01

Prepared & Analyzed: 12/18/18 1

Chloride	279	20.0	mg/kg	250	27.5	101	80-120
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Matrix Spike Dup (1851015-MSD1)
Source: P812027-01

Prepared & Analyzed: 12/18/18 1

Chloride	292	20.0	mg/kg	250	27.5	106	80-120	4.23	20
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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
12/20/18 12:57

Notes and Definitions

Surr2 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

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Analytical Report

Report Summary

Client: BP America Production Co.

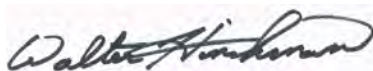
Samples Received: 4/18/2019

Job Number: 03143-0424

Work Order: P904104

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 4/22/19

Walter Hinchman, Laboratory Director



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.
Statement of Data Authenticity: Envirotech, Inc, attests the data reported has not been altered in any way.
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Envirotech, Inc, currently holds the appropriate and available Utah TNI certification NM009792018-1 for the data reported.

BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/22/19 14:56

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BASE 5-pt @ 20'	P904104-01A	Solid	04/18/19	04/18/19	Glass Jar, 4 oz.
West Wall 5-pt (8'-18')	P904104-02A	Solid	04/18/19	04/18/19	Glass Jar, 4 oz.
South Wall 5-pt (8'-18')	P904104-03A	Solid	04/18/19	04/18/19	Glass Jar, 4 oz.
East Wall 5-pt (8'-18')	P904104-04A	Solid	04/18/19	04/18/19	Glass Jar, 4 oz.
North Wall 5-pt (8'-18')	P904104-05A	Solid	04/18/19	04/18/19	Glass Jar, 4 oz.

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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/22/19 14:56

Volatile Organic Compounds by 8260 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1916025 - Purge and Trap EPA 5030A

Blank (1916025-BLK1)

Prepared: 04/18/19 0 Analyzed: 04/19/19 0

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							
Surrogate: 1,2-Dichloroethane-d4	0.497		"	0.500		99.4	70-130			
Surrogate: Toluene-d8	0.495		"	0.500		98.9	70-130			
Surrogate: Bromofluorobenzene	0.488		"	0.500		97.5	70-130			

LCS (1916025-BS1)

Prepared: 04/18/19 0 Analyzed: 04/19/19 0

Benzene	2.70	0.0250	mg/kg	2.50		108	70-130			
Toluene	2.74	0.0250	"	2.50		110	70-130			
Ethylbenzene	2.75	0.0250	"	2.50		110	70-130			
p,m-Xylene	5.52	0.0500	"	5.00		110	70-130			
o-Xylene	2.83	0.0250	"	2.50		113	70-130			
Total Xylenes	8.35	0.0250	"	7.50		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.499		"	0.500		99.7	70-130			
Surrogate: Toluene-d8	0.507		"	0.500		101	70-130			
Surrogate: Bromofluorobenzene	0.500		"	0.500		100	70-130			

Matrix Spike (1916025-MS1)

Source: P904099-01

Prepared: 04/18/19 0 Analyzed: 04/19/19 0

Benzene	2.37	0.0250	mg/kg	2.50	ND	94.9	48-131			
Toluene	2.38	0.0250	"	2.50	ND	95.3	48-130			
Ethylbenzene	2.41	0.0250	"	2.50	ND	96.2	45-135			
p,m-Xylene	4.86	0.0500	"	5.00	ND	97.1	43-135			
o-Xylene	2.50	0.0250	"	2.50	ND	99.9	43-135			
Total Xylenes	7.35	0.0250	"	7.50	ND	98.0	43-135			
Surrogate: 1,2-Dichloroethane-d4	0.494		"	0.500		98.8	70-130			
Surrogate: Toluene-d8	0.500		"	0.500		99.9	70-130			
Surrogate: Bromofluorobenzene	0.512		"	0.500		102	70-130			

Matrix Spike Dup (1916025-MSD1)

Source: P904099-01

Prepared: 04/18/19 0 Analyzed: 04/19/19 0

Benzene	2.82	0.0250	mg/kg	2.50	ND	113	48-131	17.2	23	
Toluene	2.86	0.0250	"	2.50	ND	114	48-130	18.0	24	
Ethylbenzene	2.88	0.0250	"	2.50	ND	115	45-135	18.0	27	
p,m-Xylene	5.82	0.0500	"	5.00	ND	116	43-135	18.0	27	
o-Xylene	2.98	0.0250	"	2.50	ND	119	43-135	17.7	27	
Total Xylenes	8.80	0.0250	"	7.50	ND	117	43-135	17.9	27	
Surrogate: 1,2-Dichloroethane-d4	0.510		"	0.500		102	70-130			
Surrogate: Toluene-d8	0.503		"	0.500		101	70-130			

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	04/22/19 14:56

Volatile Organic Compounds by 8260 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1916025 - Purge and Trap EPA 5030A

Matrix Spike Dup (1916025-MSD1) **Source: P904099-01** Prepared: 04/18/19 0 Analyzed: 04/19/19 0

Surrogate: Bromofluorobenzene	0.514	mg/kg	0.500	103	70-130
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/22/19 14:56

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1916025 - Purge and Trap EPA 5030A
Blank (1916025-BLK1)

Prepared: 04/18/19 0 Analyzed: 04/19/19 0

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1,2-Dichloroethane-d4	0.497		"	0.500		99.4	70-130			
Surrogate: Toluene-d8	0.495		"	0.500		98.9	70-130			
Surrogate: Bromofluorobenzene	0.488		"	0.500		97.5	70-130			

LCS (1916025-BS2)

Prepared: 04/18/19 0 Analyzed: 04/19/19 0

Gasoline Range Organics (C6-C10)	56.0	20.0	mg/kg	50.0		112	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.495		"	0.500		98.9	70-130			
Surrogate: Toluene-d8	0.503		"	0.500		101	70-130			
Surrogate: Bromofluorobenzene	0.502		"	0.500		100	70-130			

Matrix Spike (1916025-MS2)

Source: P904099-01

Prepared: 04/18/19 0 Analyzed: 04/19/19 0

Gasoline Range Organics (C6-C10)	52.9	20.0	mg/kg	50.0	ND	106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.490		"	0.500		98.0	70-130			
Surrogate: Toluene-d8	0.494		"	0.500		98.8	70-130			
Surrogate: Bromofluorobenzene	0.508		"	0.500		102	70-130			

Matrix Spike Dup (1916025-MSD2)

Source: P904099-01

Prepared: 04/18/19 0 Analyzed: 04/19/19 0

Gasoline Range Organics (C6-C10)	51.7	20.0	mg/kg	50.0	ND	103	70-130	2.24	20	
Surrogate: 1,2-Dichloroethane-d4	0.499		"	0.500		99.7	70-130			
Surrogate: Toluene-d8	0.504		"	0.500		101	70-130			
Surrogate: Bromofluorobenzene	0.510		"	0.500		102	70-130			

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BP America Production Co.	Project Name:	Hardie LS 1A	Reported: 04/22/19 14:56
PO Box 22024	Project Number:	03143-0424	
Tulsa OK, 74121-2024	Project Manager:	Steve Moskal	

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1916036 - DRO Extraction EPA 3570

Blank (1916036-BLK1)

Prepared: 04/18/19 1 Analyzed: 04/19/19 0

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: <i>n</i> -Nonane	37.3		"	40.0		93.2	50-200			

LCS (1916036-BS1)

Prepared: 04/18/19 1 Analyzed: 04/19/19 0

Diesel Range Organics (C10-C28)	443	25.0	mg/kg	500		88.7	38-132			
Surrogate: <i>n</i> -Nonane	38.7		"	40.0		96.8	50-200			

Matrix Spike (1916036-MS1)

Source: P904102-21

Prepared: 04/18/19 1 Analyzed: 04/19/19 0

Diesel Range Organics (C10-C28)	436	25.0	mg/kg	500	ND	87.2	38-132			
Surrogate: <i>n</i> -Nonane	36.9		"	40.0		92.3	50-200			

Matrix Spike Dup (1916036-MSD1)

Source: P904102-21

Prepared: 04/18/19 1 Analyzed: 04/19/19 0

Diesel Range Organics (C10-C28)	426	25.0	mg/kg	500	ND	85.2	38-132	2.32	20	
Surrogate: <i>n</i> -Nonane	37.0		"	40.0		92.4	50-200			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/22/19 14:56

Anions by 300.0/9056A - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1916033 - Anion Extraction EPA 300.0/9056A
Blank (1916033-BLK1)

Prepared: 04/18/19 1 Analyzed: 04/18/19 2

Chloride ND 20.0 mg/kg

LCS (1916033-BS1)

Prepared: 04/18/19 1 Analyzed: 04/18/19 2

Chloride 265 20.0 mg/kg 250 106 90-110

Matrix Spike (1916033-MS1)
Source: P904102-01

Prepared: 04/18/19 1 Analyzed: 04/18/19 2

Chloride 307 20.0 mg/kg 250 37.1 108 80-120

Matrix Spike Dup (1916033-MSD1)
Source: P904102-01

Prepared: 04/18/19 1 Analyzed: 04/19/19 0

Chloride 311 20.0 mg/kg 250 37.1 110 80-120 1.29 20

Blank (1916033-BLK2)

Prepared: 04/18/19 1 Analyzed: 04/19/19 0

Chloride ND 20.0 mg/kg

LCS (1916033-BS2)

Prepared: 04/18/19 1 Analyzed: 04/19/19 0

Chloride 269 20.0 mg/kg 250 108 90-110

Matrix Spike (1916033-MS2)
Source: P904102-21

Prepared: 04/18/19 1 Analyzed: 04/19/19 0

Chloride 1080 20.0 mg/kg 250 818 106 80-120

Matrix Spike Dup (1916033-MSD2)
Source: P904102-21

Prepared: 04/18/19 1 Analyzed: 04/19/19 0

Chloride 1120 20.0 mg/kg 250 818 123 80-120 3.75 20 SPK1

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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/22/19 14:56

Notes and Definitions

Surr2 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

SPK1 The spike recovery is outside of quality control limits.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

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Analytical Report

Report Summary

Client: BP America Production Co.

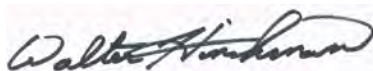
Samples Received: 4/25/2019

Job Number: 03143-0424

Work Order: P904125

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 4/26/19

Walter Hinchman, Laboratory Director



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.
Statement of Data Authenticity: Envirotech, Inc. attests the data reported has not been altered in any way.
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Envirotech, Inc. currently holds the appropriate and available Utah TNI certification NM009792018-1 for the data reported.

BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/26/19 15:28

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
TSP-1	P904125-01A	Soil	04/25/19	04/25/19	Glass Jar, 4 oz.
TSP-2	P904125-02A	Soil	04/25/19	04/25/19	Glass Jar, 4 oz.

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	04/26/19 15:28

Volatile Organic Compounds by 8260 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917033 - Purge and Trap EPA 5030A

Blank (1917033-BLK1)

Prepared: 04/25/19 1 Analyzed: 04/26/19 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							
Surrogate: 1,2-Dichloroethane-d4	0.513		"	0.500		103	70-130			
Surrogate: Toluene-d8	0.497		"	0.500		99.3	70-130			
Surrogate: Bromofluorobenzene	0.491		"	0.500		98.1	70-130			

LCS (1917033-BS1)

Prepared: 04/25/19 1 Analyzed: 04/26/19 1

Benzene	2.71	0.0250	mg/kg	2.50		108	70-130			
Toluene	2.63	0.0250	"	2.50		105	70-130			
Ethylbenzene	2.59	0.0250	"	2.50		104	70-130			
p,m-Xylene	5.03	0.0500	"	5.00		101	70-130			
o-Xylene	2.51	0.0250	"	2.50		101	70-130			
Total Xylenes	7.55	0.0250	"	7.50		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.516		"	0.500		103	70-130			
Surrogate: Toluene-d8	0.503		"	0.500		101	70-130			
Surrogate: Bromofluorobenzene	0.494		"	0.500		98.8	70-130			

Matrix Spike (1917033-MS1)

Source: P904125-01

Prepared: 04/25/19 1 Analyzed: 04/26/19 1

Benzene	2.91	0.0250	mg/kg	2.50	ND	116	48-131			
Toluene	3.02	0.0250	"	2.50	0.199	113	48-130			
Ethylbenzene	2.99	0.0250	"	2.50	0.0690	117	45-135			
p,m-Xylene	7.58	0.0500	"	5.00	1.39	124	43-135			
o-Xylene	3.47	0.0250	"	2.50	0.337	125	43-135			
Total Xylenes	11.0	0.0250	"	7.50	1.72	124	43-135			
Surrogate: 1,2-Dichloroethane-d4	0.500		"	0.500		100	70-130			
Surrogate: Toluene-d8	0.516		"	0.500		103	70-130			
Surrogate: Bromofluorobenzene	0.501		"	0.500		100	70-130			

Matrix Spike Dup (1917033-MSD1)

Source: P904125-01

Prepared: 04/25/19 1 Analyzed: 04/26/19 1

Benzene	2.77	0.0250	mg/kg	2.50	ND	111	48-131	4.65	23	
Toluene	2.95	0.0250	"	2.50	0.199	110	48-130	2.49	24	
Ethylbenzene	2.89	0.0250	"	2.50	0.0690	113	45-135	3.57	27	
p,m-Xylene	7.26	0.0500	"	5.00	1.39	117	43-135	4.39	27	
o-Xylene	3.32	0.0250	"	2.50	0.337	119	43-135	4.32	27	
Total Xylenes	10.6	0.0250	"	7.50	1.72	118	43-135	4.37	27	
Surrogate: 1,2-Dichloroethane-d4	0.518		"	0.500		104	70-130			
Surrogate: Toluene-d8	0.518		"	0.500		104	70-130			

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	04/26/19 15:28

Volatile Organic Compounds by 8260 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917033 - Purge and Trap EPA 5030A

Matrix Spike Dup (1917033-MSD1)

Source: P904125-01

Prepared: 04/25/19 1 Analyzed: 04/26/19 1

Surrogate: Bromofluorobenzene	0.495	mg/kg	0.500	98.9	70-130
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/26/19 15:28

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917028 - DRO Extraction EPA 3570
Blank (1917028-BLK1)

Prepared: 04/25/19 0 Analyzed: 04/25/19 1

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: <i>n</i> -Nonane	49.9		"	50.0		99.8	50-200			

LCS (1917028-BS1)

Prepared: 04/25/19 0 Analyzed: 04/25/19 1

Diesel Range Organics (C10-C28)	481	25.0	mg/kg	500		96.2	38-132			
Surrogate: <i>n</i> -Nonane	46.4		"	50.0		92.7	50-200			

Matrix Spike (1917028-MS1)

Source: P904124-01

Prepared: 04/25/19 0 Analyzed: 04/25/19 1

Diesel Range Organics (C10-C28)	500	25.0	mg/kg	500	ND	100	38-132			
Surrogate: <i>n</i> -Nonane	46.3		"	50.0		92.5	50-200			

Matrix Spike Dup (1917028-MSD1)

Source: P904124-01

Prepared: 04/25/19 0 Analyzed: 04/25/19 1

Diesel Range Organics (C10-C28)	515	25.0	mg/kg	500	ND	103	38-132	2.95	20	
Surrogate: <i>n</i> -Nonane	47.0		"	50.0		94.1	50-200			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/26/19 15:28

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917033 - Purge and Trap EPA 5030A
Blank (1917033-BLK1)

Prepared: 04/25/19 1 Analyzed: 04/26/19 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1,2-Dichloroethane-d4	0.513		"	0.500		103	70-130			
Surrogate: Toluene-d8	0.497		"	0.500		99.3	70-130			
Surrogate: Bromofluorobenzene	0.491		"	0.500		98.1	70-130			

LCS (1917033-BS2)

Prepared: 04/25/19 1 Analyzed: 04/26/19 1

Gasoline Range Organics (C6-C10)	58.1	20.0	mg/kg	50.0		116	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.501		"	0.500		100	70-130			
Surrogate: Toluene-d8	0.492		"	0.500		98.3	70-130			
Surrogate: Bromofluorobenzene	0.499		"	0.500		99.8	70-130			

Matrix Spike (1917033-MS2)

Source: P904125-01

Prepared: 04/25/19 1 Analyzed: 04/26/19 1

Gasoline Range Organics (C6-C10)	107	20.0	mg/kg	50.0	43.5	126	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.502		"	0.500		100	70-130			
Surrogate: Toluene-d8	0.517		"	0.500		103	70-130			
Surrogate: Bromofluorobenzene	0.490		"	0.500		97.9	70-130			

Matrix Spike Dup (1917033-MSD2)

Source: P904125-01

Prepared: 04/25/19 1 Analyzed: 04/26/19 1

Gasoline Range Organics (C6-C10)	108	20.0	mg/kg	50.0	43.5	128	70-130	0.758	20	
Surrogate: 1,2-Dichloroethane-d4	0.503		"	0.500		101	70-130			
Surrogate: Toluene-d8	0.530		"	0.500		106	70-130			
Surrogate: Bromofluorobenzene	0.489		"	0.500		97.7	70-130			

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BP America Production Co.	Project Name:	Hardie LS 1A	
PO Box 22024	Project Number:	03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager:	Steve Moskal	04/26/19 15:28

Anions by 300.0/9056A - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917029 - Anion Extraction EPA 300.0/9056A

Blank (1917029-BLK1)

Prepared & Analyzed: 04/25/19 1

Chloride	ND	20.0	mg/kg
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LCS (1917029-BS1)

Prepared & Analyzed: 04/25/19 1

Chloride	254	20.0	mg/kg	250	102	90-110
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Matrix Spike (1917029-MS1)

Source: P904125-01

Prepared: 04/25/19 1 Analyzed: 04/25/19 2

Chloride	338	20.0	mg/kg	250	64.1	109	80-120
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Matrix Spike Dup (1917029-MSD1)

Source: P904125-01

Prepared: 04/25/19 1 Analyzed: 04/25/19 2

Chloride	338	20.0	mg/kg	250	64.1	110	80-120	0.0829	20
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/26/19 15:28

Notes and Definitions

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

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Analytical Report

Report Summary

Client: BP America Production Co.

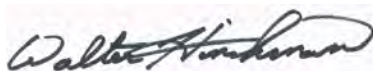
Samples Received: 4/26/2019

Job Number: 03143-0424

Work Order: P904128

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 4/30/19

Walter Hinchman, Laboratory Director



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.
Statement of Data Authenticity: Envirotech, Inc, attests the data reported has not been altered in any way.
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Envirotech, Inc, currently holds the appropriate and available Utah TNI certification NM009792018-1 for the data reported.

BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/30/19 16:28

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
TSP-3	P904128-01A	Soil	04/26/19	04/26/19	Glass Jar, 4 oz.
TSP-4	P904128-02A	Soil	04/26/19	04/26/19	Glass Jar, 4 oz.
TSP-5	P904128-03A	Soil	04/26/19	04/26/19	Glass Jar, 4 oz.

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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/30/19 16:28

Volatile Organics by EPA 8021 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917045 - Purge and Trap EPA 5030A

Blank (1917045-BLK1)

Prepared: 04/26/19 1 Analyzed: 04/28/19 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							
Surrogate: 4-Bromochlorobenzene-PID	8.07		"	8.00		101	50-150			

LCS (1917045-BS1)

Prepared: 04/26/19 1 Analyzed: 04/28/19 1

Benzene	4.61	0.0250	mg/kg	5.00		92.1	70-130			
Toluene	5.02	0.0250	"	5.00		100	70-130			
Ethylbenzene	5.01	0.0250	"	5.00		100	70-130			
p,m-Xylene	10.3	0.0500	"	10.0		103	70-130			
o-Xylene	5.00	0.0250	"	5.00		100	70-130			
Total Xylenes	15.3	0.0250	"	15.0		102	70-130			
Surrogate: 4-Bromochlorobenzene-PID	8.05		"	8.00		101	50-150			

Matrix Spike (1917045-MS1)

Source: P904128-01

Prepared: 04/26/19 1 Analyzed: 04/28/19 1

Benzene	4.43	0.0250	mg/kg	5.00	0.0337	87.8	54.3-133			
Toluene	5.45	0.0250	"	5.00	0.899	90.9	61.4-130			
Ethylbenzene	5.21	0.0250	"	5.00	0.428	95.7	61.4-133			
p,m-Xylene	15.9	0.0500	"	10.0	7.40	84.5	63.3-131			
o-Xylene	6.44	0.0250	"	5.00	1.97	89.2	63.3-131			
Total Xylenes	22.3	0.0250	"	15.0	9.38	86.1	63.3-131			
Surrogate: 4-Bromochlorobenzene-PID	7.50		"	8.00		93.7	50-150			

Matrix Spike Dup (1917045-MSD1)

Source: P904128-01

Prepared: 04/26/19 1 Analyzed: 04/28/19 1

Benzene	4.41	0.0250	mg/kg	5.00	0.0337	87.5	54.3-133	0.342	20	
Toluene	5.28	0.0250	"	5.00	0.899	87.6	61.4-130	3.07	20	
Ethylbenzene	5.15	0.0250	"	5.00	0.428	94.5	61.4-133	1.20	20	
p,m-Xylene	15.1	0.0500	"	10.0	7.40	76.5	63.3-131	5.16	20	
o-Xylene	6.24	0.0250	"	5.00	1.97	85.3	63.3-131	3.14	20	
Total Xylenes	21.3	0.0250	"	15.0	9.38	79.4	63.3-131	4.57	20	
Surrogate: 4-Bromochlorobenzene-PID	7.93		"	8.00		99.1	50-150			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/30/19 16:28

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917043 - DRO Extraction EPA 3570
Blank (1917043-BLK1)

Prepared: 04/26/19 1 Analyzed: 04/27/19 1

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: <i>n</i> -Nonane	55.7		"	50.0		111	50-200			

LCS (1917043-BS1)

Prepared: 04/26/19 1 Analyzed: 04/27/19 1

Diesel Range Organics (C10-C28)	507	25.0	mg/kg	500		101	38-132			
Surrogate: <i>n</i> -Nonane	47.7		"	50.0		95.3	50-200			

Matrix Spike (1917043-MS1)

Source: P904126-01

Prepared: 04/26/19 1 Analyzed: 04/27/19 1

Diesel Range Organics (C10-C28)	489	25.0	mg/kg	500	ND	97.8	38-132			
Surrogate: <i>n</i> -Nonane	47.3		"	50.0		94.7	50-200			

Matrix Spike Dup (1917043-MSD1)

Source: P904126-01

Prepared: 04/26/19 1 Analyzed: 04/27/19 1

Diesel Range Organics (C10-C28)	487	25.0	mg/kg	500	ND	97.4	38-132	0.327	20	
Surrogate: <i>n</i> -Nonane	50.3		"	50.0		101	50-200			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/30/19 16:28

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917045 - Purge and Trap EPA 5030A
Blank (1917045-BLK1)

Prepared: 04/26/19 1 Analyzed: 04/28/19 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.66		"	8.00		95.8	50-150			

LCS (1917045-BS2)

Prepared: 04/26/19 1 Analyzed: 04/28/19 1

Gasoline Range Organics (C6-C10)	56.0	20.0	mg/kg	50.0		112	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.83		"	8.00		97.9	50-150			

Matrix Spike (1917045-MS2)

Source: P904128-01

Prepared: 04/26/19 1 Analyzed: 04/28/19 1

Gasoline Range Organics (C6-C10)	155	20.0	mg/kg	50.0	124	62.2	70-130			SPK1
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.33		"	8.00		104	50-150			

Matrix Spike Dup (1917045-MSD2)

Source: P904128-01

Prepared: 04/26/19 1 Analyzed: 04/28/19 1

Gasoline Range Organics (C6-C10)	152	20.0	mg/kg	50.0	124	55.3	70-130	2.23	20	SPK1
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.20		"	8.00		102	50-150			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/30/19 16:28

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917048 - DRO Extraction EPA 3570
Blank (1917048-BLK1)

Prepared: 04/29/19 0 Analyzed: 04/29/19 1

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: <i>n</i> -Nonane	48.5		"	50.0		96.9	50-200			

LCS (1917048-BS1)

Prepared: 04/29/19 0 Analyzed: 04/29/19 1

Diesel Range Organics (C10-C28)	494	25.0	mg/kg	500		98.7	38-132			
Surrogate: <i>n</i> -Nonane	47.9		"	50.0		95.9	50-200			

Matrix Spike (1917048-MS1)

Source: P904130-01

Prepared: 04/29/19 0 Analyzed: 04/29/19 1

Diesel Range Organics (C10-C28)	692	25.0	mg/kg	500	168	105	38-132			
Surrogate: <i>n</i> -Nonane	50.7		"	50.0		101	50-200			

Matrix Spike Dup (1917048-MSD1)

Source: P904130-01

Prepared: 04/29/19 0 Analyzed: 04/29/19 1

Diesel Range Organics (C10-C28)	715	25.0	mg/kg	500	168	109	38-132	3.29	20	
Surrogate: <i>n</i> -Nonane	51.3		"	50.0		103	50-200			

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	04/30/19 16:28

Anions by 300.0/9056A - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917042 - Anion Extraction EPA 300.0/9056A

Blank (1917042-BLK1)

Prepared & Analyzed: 04/26/19 1

Chloride	ND	20.0	mg/kg
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LCS (1917042-BS1)

Prepared: 04/26/19 1 Analyzed: 04/30/19 1

Chloride	251	20.0	mg/kg	250	101	90-110
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Matrix Spike (1917042-MS1)

Source: P904126-01

Prepared & Analyzed: 04/26/19 1

Chloride	2090	20.0	mg/kg	250	1500	236	80-120		SPK2
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Matrix Spike Dup (1917042-MSD1)

Source: P904126-01

Prepared & Analyzed: 04/26/19 1

Chloride	1950	20.0	mg/kg	250	1500	181	80-120	6.85	20	SPK2
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/30/19 16:28

Notes and Definitions

SPK2 The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to native analyte concentration at 4 times or greater than the spike concentration.

SPK1 The spike recovery is outside of quality control limits.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

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Analytical Report

Report Summary

Client: BP America Production Co.

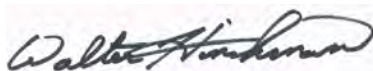
Samples Received: 4/30/2019

Job Number: 03143-0424

Work Order: P904140

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 5/2/19

Walter Hinchman, Laboratory Director



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/02/19 15:59

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
TSP-6	P904140-01A	Soil	04/30/19	04/30/19	Glass Jar, 4 oz.
TSP-7	P904140-02A	Soil	04/30/19	04/30/19	Glass Jar, 4 oz.
TSP-8	P904140-03A	Soil	04/30/19	04/30/19	Glass Jar, 4 oz.
TSP-9	P904140-04A	Soil	04/30/19	04/30/19	Glass Jar, 4 oz.
TSP-10	P904140-05A	Soil	04/30/19	04/30/19	Glass Jar, 4 oz.

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/02/19 15:59

Volatile Organic Compounds by 8260 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918013 - Purge and Trap EPA 5030A
Blank (1918013-BLK1)

Prepared & Analyzed: 04/30/19 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							
Surrogate: 1,2-Dichloroethane-d4	0.508		"	0.500		102	70-130			
Surrogate: Toluene-d8	0.494		"	0.500		98.7	70-130			
Surrogate: Bromofluorobenzene	0.483		"	0.500		96.5	70-130			

LCS (1918013-BS1)

Prepared & Analyzed: 04/30/19 1

Benzene	2.74	0.0250	mg/kg	2.50		109	70-130			
Toluene	2.60	0.0250	"	2.50		104	70-130			
Ethylbenzene	2.58	0.0250	"	2.50		103	70-130			
p,m-Xylene	4.94	0.0500	"	5.00		98.8	70-130			
o-Xylene	2.47	0.0250	"	2.50		98.6	70-130			
Total Xylenes	7.41	0.0250	"	7.50		98.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.499		"	0.500		99.7	70-130			
Surrogate: Toluene-d8	0.496		"	0.500		99.2	70-130			
Surrogate: Bromofluorobenzene	0.489		"	0.500		97.8	70-130			

Matrix Spike (1918013-MS1)

Source: P904136-81

Prepared: 04/30/19 1 Analyzed: 05/01/19 1

Benzene	2.65	0.0250	mg/kg	2.50	ND	106	48-131			
Toluene	2.56	0.0250	"	2.50	ND	102	48-130			
Ethylbenzene	2.50	0.0250	"	2.50	ND	100	45-135			
p,m-Xylene	4.80	0.0500	"	5.00	ND	96.1	43-135			
o-Xylene	2.39	0.0250	"	2.50	ND	95.5	43-135			
Total Xylenes	7.19	0.0250	"	7.50	ND	95.9	43-135			
Surrogate: 1,2-Dichloroethane-d4	0.515		"	0.500		103	70-130			
Surrogate: Toluene-d8	0.500		"	0.500		99.9	70-130			
Surrogate: Bromofluorobenzene	0.502		"	0.500		100	70-130			

Matrix Spike Dup (1918013-MSD1)

Source: P904136-81

Prepared: 04/30/19 1 Analyzed: 05/01/19 1

Benzene	2.77	0.0250	mg/kg	2.50	ND	111	48-131	4.54	23	
Toluene	2.63	0.0250	"	2.50	ND	105	48-130	2.56	24	
Ethylbenzene	2.58	0.0250	"	2.50	ND	103	45-135	3.15	27	
p,m-Xylene	4.93	0.0500	"	5.00	ND	98.6	43-135	2.56	27	
o-Xylene	2.45	0.0250	"	2.50	ND	98.1	43-135	2.62	27	
Total Xylenes	7.38	0.0250	"	7.50	ND	98.4	43-135	2.58	27	
Surrogate: 1,2-Dichloroethane-d4	0.502		"	0.500		100	70-130			
Surrogate: Toluene-d8	0.500		"	0.500		100	70-130			

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BP America Production Co.	Project Name:	Hardie LS 1A	Reported: 05/02/19 15:59
PO Box 22024	Project Number:	03143-0424	
Tulsa OK, 74121-2024	Project Manager:	Steve Moskal	

Volatile Organic Compounds by 8260 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918013 - Purge and Trap EPA 5030A

Matrix Spike Dup (1918013-MSD1)

Source: P904136-81

Prepared: 04/30/19 1 Analyzed: 05/01/19 1

Surrogate: Bromofluorobenzene	0.498	mg/kg	0.500	99.6	70-130
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/02/19 15:59

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918013 - Purge and Trap EPA 5030A
Blank (1918013-BLK1)

Prepared & Analyzed: 04/30/19 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1,2-Dichloroethane-d4	0.508		"	0.500		102	70-130			
Surrogate: Toluene-d8	0.494		"	0.500		98.7	70-130			
Surrogate: Bromofluorobenzene	0.483		"	0.500		96.5	70-130			

LCS (1918013-BS2)

Prepared & Analyzed: 04/30/19 1

Gasoline Range Organics (C6-C10)	51.2	20.0	mg/kg	50.0		102	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.483		"	0.500		96.6	70-130			
Surrogate: Toluene-d8	0.492		"	0.500		98.4	70-130			
Surrogate: Bromofluorobenzene	0.507		"	0.500		101	70-130			

Matrix Spike (1918013-MS2)

Source: P904136-81

Prepared: 04/30/19 1 Analyzed: 05/01/19 1

Gasoline Range Organics (C6-C10)	50.7	20.0	mg/kg	50.0	ND	101	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.509		"	0.500		102	70-130			
Surrogate: Toluene-d8	0.504		"	0.500		101	70-130			
Surrogate: Bromofluorobenzene	0.502		"	0.500		100	70-130			

Matrix Spike Dup (1918013-MSD2)

Source: P904136-81

Prepared: 04/30/19 1 Analyzed: 05/01/19 1

Gasoline Range Organics (C6-C10)	52.0	20.0	mg/kg	50.0	ND	104	70-130	2.40	20	
Surrogate: 1,2-Dichloroethane-d4	0.506		"	0.500		101	70-130			
Surrogate: Toluene-d8	0.502		"	0.500		100	70-130			
Surrogate: Bromofluorobenzene	0.497		"	0.500		99.4	70-130			

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BP America Production Co.	Project Name:	Hardie LS 1A	Reported: 05/02/19 15:59
PO Box 22024	Project Number:	03143-0424	
Tulsa OK, 74121-2024	Project Manager:	Steve Moskal	

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918024 - DRO Extraction EPA 3570

Blank (1918024-BLK1)		Prepared: 04/30/19 1 Analyzed: 05/01/19 2								
Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: n-Nonane	45.7		"	50.0		91.4	50-200			
LCS (1918024-BS1)		Prepared: 04/30/19 1 Analyzed: 05/01/19 2								
Diesel Range Organics (C10-C28)	440	25.0	mg/kg	500		88.1	38-132			
Surrogate: n-Nonane	42.2		"	50.0		84.4	50-200			
Matrix Spike (1918024-MS1)		Source: P904136-81		Prepared: 04/30/19 1 Analyzed: 05/02/19 0						
Diesel Range Organics (C10-C28)	460	25.0	mg/kg	500	ND	92.1	38-132			
Surrogate: n-Nonane	43.1		"	50.0		86.1	50-200			
Matrix Spike Dup (1918024-MSD1)		Source: P904136-81		Prepared: 04/30/19 1 Analyzed: 05/02/19 0						
Diesel Range Organics (C10-C28)	474	25.0	mg/kg	500	ND	94.9	38-132	2.99	20	
Surrogate: n-Nonane	43.3		"	50.0		86.6	50-200			

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	05/02/19 15:59

Anions by 300.0/9056A - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918018 - Anion Extraction EPA 300.0/9056A

Blank (1918018-BLK1)

Prepared: 04/30/19 1 Analyzed: 05/01/19 2

Chloride	ND	20.0	mg/kg
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LCS (1918018-BS1)

Prepared: 04/30/19 1 Analyzed: 05/02/19 0

Chloride	268	20.0	mg/kg	250	107	90-110
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Matrix Spike (1918018-MS1)

Source: P904136-81

Prepared: 04/30/19 1 Analyzed: 05/02/19 0

Chloride	8390	100	mg/kg	1250	7400	79.3	80-120		SPK1
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Matrix Spike Dup (1918018-MSD1)

Source: P904136-81

Prepared: 04/30/19 1 Analyzed: 05/02/19 1

Chloride	8510	100	mg/kg	1250	7400	88.9	80-120	1.41	20
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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
05/02/19 15:59

Notes and Definitions

SPK1 The spike recovery is outside of quality control limits.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

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Analytical Report

Report Summary

Client: BP America Production Co.

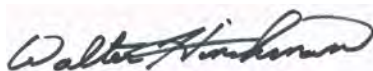
Samples Received: 5/1/2019

Job Number: 03143-0424

Work Order: P905005

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 5/3/19

Walter Hinchman, Laboratory Director



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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
05/03/19 15:16

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
TSP-11	P905005-01A	Soil	05/01/19	05/01/19	Glass Jar, 4 oz.
TSP-12	P905005-02A	Soil	05/01/19	05/01/19	Glass Jar, 4 oz.
TSP-13	P905005-03A	Soil	05/01/19	05/01/19	Glass Jar, 4 oz.
TSP-14	P905005-04A	Soil	05/01/19	05/01/19	Glass Jar, 4 oz.

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/03/19 15:16

Volatile Organics by EPA 8021 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918032 - Purge and Trap EPA 5030A
Blank (1918032-BLK1)

Prepared: 05/01/19 1 Analyzed: 05/02/19 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							

Surrogate: 4-Bromochlorobenzene-PID 8.26 " 8.00 103 50-150

LCS (1918032-BS1)

Prepared: 05/01/19 1 Analyzed: 05/02/19 1

Benzene	4.66	0.0250	mg/kg	5.00		93.2	70-130			
Toluene	5.10	0.0250	"	5.00		102	70-130			
Ethylbenzene	5.13	0.0250	"	5.00		103	70-130			
p,m-Xylene	10.6	0.0500	"	10.0		106	70-130			
o-Xylene	5.13	0.0250	"	5.00		103	70-130			
Total Xylenes	15.7	0.0250	"	15.0		105	70-130			

Surrogate: 4-Bromochlorobenzene-PID 8.17 " 8.00 102 50-150

Matrix Spike (1918032-MS1)

Source: P905005-01

Prepared: 05/01/19 1 Analyzed: 05/02/19 1

Benzene	4.49	0.0250	mg/kg	5.00	0.0309	89.1	54.3-133			
Toluene	5.37	0.0250	"	5.00	0.790	91.7	61.4-130			
Ethylbenzene	5.23	0.0250	"	5.00	0.315	98.3	61.4-133			
p,m-Xylene	16.0	0.0500	"	10.0	7.79	82.2	63.3-131			
o-Xylene	6.61	0.0250	"	5.00	2.10	90.3	63.3-131			
Total Xylenes	22.6	0.0250	"	15.0	9.89	84.9	63.3-131			

Surrogate: 4-Bromochlorobenzene-PID 7.70 " 8.00 96.2 50-150

Matrix Spike Dup (1918032-MSD1)

Source: P905005-01

Prepared: 05/01/19 1 Analyzed: 05/02/19 1

Benzene	4.40	0.0250	mg/kg	5.00	0.0309	87.4	54.3-133	1.87	20	
Toluene	5.30	0.0250	"	5.00	0.790	90.2	61.4-130	1.42	20	
Ethylbenzene	5.13	0.0250	"	5.00	0.315	96.3	61.4-133	1.97	20	
p,m-Xylene	15.5	0.0500	"	10.0	7.79	77.4	63.3-131	3.05	20	
o-Xylene	6.41	0.0250	"	5.00	2.10	86.3	63.3-131	3.05	20	
Total Xylenes	21.9	0.0250	"	15.0	9.89	80.3	63.3-131	3.05	20	

Surrogate: 4-Bromochlorobenzene-PID 7.58 " 8.00 94.7 50-150

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/03/19 15:16

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918032 - Purge and Trap EPA 5030A
Blank (1918032-BLK1)

Prepared: 05/01/19 1 Analyzed: 05/02/19 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.57		"	8.00		94.7	50-150			

LCS (1918032-BS2)

Prepared: 05/01/19 1 Analyzed: 05/02/19 1

Gasoline Range Organics (C6-C10)	48.8	20.0	mg/kg	50.0		97.5	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.70		"	8.00		96.2	50-150			

Matrix Spike (1918032-MS2)

Source: P905005-01

Prepared: 05/01/19 1 Analyzed: 05/02/19 1

Gasoline Range Organics (C6-C10)	138	20.0	mg/kg	50.0	123	30.3	70-130			SPK1
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.11		"	8.00		101	50-150			

Matrix Spike Dup (1918032-MSD2)

Source: P905005-01

Prepared: 05/01/19 1 Analyzed: 05/02/19 1

Gasoline Range Organics (C6-C10)	135	20.0	mg/kg	50.0	123	24.0	70-130	2.31	20	SPK1
Surrogate: 1-Chloro-4-fluorobenzene-FID	8.18		"	8.00		102	50-150			

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	05/03/19 15:16

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918033 - DRO Extraction EPA 3570

Blank (1918033-BLK1)

Prepared: 05/02/19 0 Analyzed: 05/02/19 1

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: <i>n</i> -Nonane	45.7		"	50.0		91.4	50-200			

LCS (1918033-BS1)

Prepared: 05/02/19 0 Analyzed: 05/02/19 1

Diesel Range Organics (C10-C28)	476	25.0	mg/kg	500		95.2	38-132			
Surrogate: <i>n</i> -Nonane	44.4		"	50.0		88.9	50-200			

Matrix Spike (1918033-MS1)

Source: P905005-01

Prepared: 05/02/19 0 Analyzed: 05/02/19 1

Diesel Range Organics (C10-C28)	1180	25.0	mg/kg	500	767	81.6	38-132			
Surrogate: <i>n</i> -Nonane	54.2		"	50.0		108	50-200			

Matrix Spike Dup (1918033-MSD1)

Source: P905005-01

Prepared: 05/02/19 0 Analyzed: 05/02/19 1

Diesel Range Organics (C10-C28)	1140	25.0	mg/kg	500	767	74.3	38-132	3.18	20	
Surrogate: <i>n</i> -Nonane	51.5		"	50.0		103	50-200			

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	05/03/19 15:16

Anions by 300.0/9056A - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918037 - Anion Extraction EPA 300.0/9056A

Blank (1918037-BLK1)

Prepared: 05/02/19 0 Analyzed: 05/02/19 1

Chloride	ND	20.0	mg/kg
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LCS (1918037-BS1)

Prepared: 05/02/19 0 Analyzed: 05/02/19 1

Chloride	243	20.0	mg/kg	250	97.1	90-110
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Matrix Spike (1918037-MS1)

Source: P904133-01

Prepared: 05/02/19 0 Analyzed: 05/02/19 1

Chloride	437	20.0	mg/kg	250	186	101	80-120
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Matrix Spike Dup (1918037-MSD1)

Source: P904133-01

Prepared: 05/02/19 0 Analyzed: 05/02/19 1

Chloride	440	20.0	mg/kg	250	186	102	80-120	0.718	20
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/03/19 15:16

Notes and Definitions

SPK1 The spike recovery is outside of quality control limits.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

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Analytical Report

Report Summary

Client: BP America Production Co.

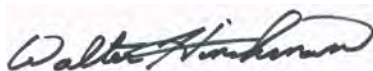
Samples Received: 5/3/2019

Job Number: 03143-0424

Work Order: P905015

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 5/7/19

Walter Hinchman, Laboratory Director



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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
05/07/19 12:26

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
TSP-15	P905015-01A	Soil	05/03/19	05/03/19	Glass Jar, 4 oz.

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	05/07/19 12:26

Volatile Organics by EPA 8021 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918046 - Purge and Trap EPA 5030A

Blank (1918046-BLK1)

Prepared: 05/03/19 1 Analyzed: 05/06/19 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							
Surrogate: 4-Bromochlorobenzene-PID	7.99		"	8.00		99.9	50-150			

LCS (1918046-BS1)

Prepared: 05/03/19 1 Analyzed: 05/06/19 1

Benzene	4.64	0.0250	mg/kg	5.00		92.7	70-130			
Toluene	5.12	0.0250	"	5.00		102	70-130			
Ethylbenzene	5.13	0.0250	"	5.00		103	70-130			
p,m-Xylene	10.6	0.0500	"	10.0		106	70-130			
o-Xylene	5.12	0.0250	"	5.00		102	70-130			
Total Xylenes	15.7	0.0250	"	15.0		104	70-130			
Surrogate: 4-Bromochlorobenzene-PID	8.03		"	8.00		100	50-150			

Matrix Spike (1918046-MS1)

Source: P905013-01

Prepared: 05/03/19 1 Analyzed: 05/06/19 1

Benzene	4.61	0.0250	mg/kg	5.00	ND	92.1	54.3-133			
Toluene	5.08	0.0250	"	5.00	ND	102	61.4-130			
Ethylbenzene	5.08	0.0250	"	5.00	ND	102	61.4-133			
p,m-Xylene	10.5	0.0500	"	10.0	ND	105	63.3-131			
o-Xylene	5.06	0.0250	"	5.00	ND	101	63.3-131			
Total Xylenes	15.5	0.0250	"	15.0	ND	104	63.3-131			
Surrogate: 4-Bromochlorobenzene-PID	7.88		"	8.00		98.6	50-150			

Matrix Spike Dup (1918046-MSD1)

Source: P905013-01

Prepared: 05/03/19 1 Analyzed: 05/06/19 1

Benzene	4.60	0.0250	mg/kg	5.00	ND	92.0	54.3-133	0.127	20	
Toluene	5.10	0.0250	"	5.00	ND	102	61.4-130	0.344	20	
Ethylbenzene	5.12	0.0250	"	5.00	ND	102	61.4-133	0.851	20	
p,m-Xylene	10.6	0.0500	"	10.0	ND	106	63.3-131	0.880	20	
o-Xylene	5.11	0.0250	"	5.00	ND	102	63.3-131	0.982	20	
Total Xylenes	15.7	0.0250	"	15.0	ND	104	63.3-131	0.913	20	
Surrogate: 4-Bromochlorobenzene-PID	7.89		"	8.00		98.6	50-150			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/07/19 12:26

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918040 - DRO Extraction EPA 3570
Blank (1918040-BLK1)

Prepared: 05/02/19 1 Analyzed: 05/03/19 1

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: <i>n</i> -Nonane	55.6		"	50.0		111	50-200			

LCS (1918040-BS1)

Prepared: 05/02/19 1 Analyzed: 05/03/19 1

Diesel Range Organics (C10-C28)	527	25.0	mg/kg	500		105	38-132			
Surrogate: <i>n</i> -Nonane	49.1		"	50.0		98.2	50-200			

Matrix Spike (1918040-MS1)

Source: P905011-01

Prepared: 05/02/19 1 Analyzed: 05/03/19 1

Diesel Range Organics (C10-C28)	796	25.0	mg/kg	500	116	136	38-132			SPK1
Surrogate: <i>n</i> -Nonane	57.0		"	50.0		114	50-200			

Matrix Spike Dup (1918040-MSD1)

Source: P905011-01

Prepared: 05/02/19 1 Analyzed: 05/03/19 1

Diesel Range Organics (C10-C28)	770	25.0	mg/kg	500	116	131	38-132	3.29	20	
Surrogate: <i>n</i> -Nonane	60.7		"	50.0		121	50-200			

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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
05/07/19 12:26

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918046 - Purge and Trap EPA 5030A

Blank (1918046-BLK1)

Prepared: 05/03/19 1 Analyzed: 05/06/19 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.51		"	8.00		93.9	50-150			

LCS (1918046-BS2)

Prepared: 05/03/19 1 Analyzed: 05/06/19 1

Gasoline Range Organics (C6-C10)	56.9	20.0	mg/kg	50.0		114	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.75		"	8.00		96.9	50-150			

Matrix Spike (1918046-MS2)

Source: P905013-01

Prepared: 05/03/19 1 Analyzed: 05/06/19 1

Gasoline Range Organics (C6-C10)	57.7	20.0	mg/kg	50.0	ND	115	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.72		"	8.00		96.5	50-150			

Matrix Spike Dup (1918046-MSD2)

Source: P905013-01

Prepared: 05/03/19 1 Analyzed: 05/06/19 1

Gasoline Range Organics (C6-C10)	58.1	20.0	mg/kg	50.0	ND	116	70-130	0.751	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.70		"	8.00		96.3	50-150			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/07/19 12:26

Anions by 300.0/9056A - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1918045 - Anion Extraction EPA 300.0/9056A
Blank (1918045-BLK1)

Prepared: 05/03/19 0 Analyzed: 05/03/19 1

Chloride ND 20.0 mg/kg

LCS (1918045-BS1)

Prepared: 05/03/19 0 Analyzed: 05/03/19 1

Chloride 251 20.0 mg/kg 250 100 90-110

Matrix Spike (1918045-MS1)
Source: P905012-01

Prepared: 05/03/19 0 Analyzed: 05/03/19 1

Chloride 298 20.0 mg/kg 250 46.7 101 80-120

Matrix Spike Dup (1918045-MSD1)
Source: P905012-01

Prepared: 05/03/19 0 Analyzed: 05/03/19 1

Chloride 300 20.0 mg/kg 250 46.7 101 80-120 0.589 20

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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
05/07/19 12:26

Notes and Definitions

SPK1 The spike recovery is outside of quality control limits.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

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Analytical Report

Report Summary

Client: BP America Production Co.

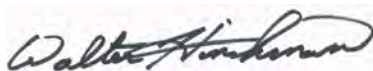
Samples Received: 5/7/2019

Job Number: 03143-0424

Work Order: P905022

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 5/9/19

Walter Hinchman, Laboratory Director



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.
Statement of Data Authenticity: Envirotech, Inc, attests the data reported has not been altered in any way.
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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
05/09/19 15:06

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
TSP-16	P905022-01A	Soil	05/07/19	05/07/19	Glass Jar, 4 oz.
TSP-17	P905022-02A	Soil	05/07/19	05/07/19	Glass Jar, 4 oz.

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/09/19 15:06

Volatile Organics by EPA 8021 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1919011 - Purge and Trap EPA 5030A
Blank (1919011-BLK1)

Prepared: 05/07/19 1 Analyzed: 05/08/19 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							

Surrogate: 4-Bromochlorobenzene-PID 7.92 " 8.00 98.9 50-150

LCS (1919011-BS1)

Prepared: 05/07/19 1 Analyzed: 05/08/19 1

Benzene	4.51	0.0250	mg/kg	5.00		90.3	70-130			
Toluene	5.05	0.0250	"	5.00		101	70-130			
Ethylbenzene	5.09	0.0250	"	5.00		102	70-130			
p,m-Xylene	10.5	0.0500	"	10.0		105	70-130			
o-Xylene	5.09	0.0250	"	5.00		102	70-130			
Total Xylenes	15.6	0.0250	"	15.0		104	70-130			

Surrogate: 4-Bromochlorobenzene-PID 7.99 " 8.00 99.8 50-150

Matrix Spike (1919011-MS1)

Source: P905018-01

Prepared: 05/07/19 1 Analyzed: 05/08/19 1

Benzene	4.55	0.0250	mg/kg	5.00	ND	91.0	54.3-133			
Toluene	5.08	0.0250	"	5.00	ND	102	61.4-130			
Ethylbenzene	5.11	0.0250	"	5.00	ND	102	61.4-133			
p,m-Xylene	10.5	0.0500	"	10.0	ND	105	63.3-131			
o-Xylene	5.11	0.0250	"	5.00	ND	102	63.3-131			
Total Xylenes	15.6	0.0250	"	15.0	ND	104	63.3-131			

Surrogate: 4-Bromochlorobenzene-PID 8.02 " 8.00 100 50-150

Matrix Spike Dup (1919011-MSD1)

Source: P905018-01

Prepared: 05/07/19 1 Analyzed: 05/08/19 1

Benzene	4.42	0.0250	mg/kg	5.00	ND	88.4	54.3-133	2.83	20	
Toluene	4.97	0.0250	"	5.00	ND	99.4	61.4-130	2.32	20	
Ethylbenzene	5.02	0.0250	"	5.00	ND	100	61.4-133	1.86	20	
p,m-Xylene	10.4	0.0500	"	10.0	ND	104	63.3-131	1.70	20	
o-Xylene	5.02	0.0250	"	5.00	ND	100	63.3-131	1.87	20	
Total Xylenes	15.4	0.0250	"	15.0	ND	102	63.3-131	1.75	20	

Surrogate: 4-Bromochlorobenzene-PID 7.94 " 8.00 99.2 50-150

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/09/19 15:06

Nonhalogenated Organics by 8015 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1919011 - Purge and Trap EPA 5030A
Blank (1919011-BLK1)

Prepared: 05/07/19 1 Analyzed: 05/08/19 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.56		"	8.00		94.5	50-150			

LCS (1919011-BS2)

Prepared: 05/07/19 1 Analyzed: 05/08/19 1

Gasoline Range Organics (C6-C10)	58.4	20.0	mg/kg	50.0		117	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.69		"	8.00		96.1	50-150			

Matrix Spike (1919011-MS2)
Source: P905018-01

Prepared: 05/07/19 1 Analyzed: 05/08/19 2

Gasoline Range Organics (C6-C10)	57.1	20.0	mg/kg	50.0	ND	114	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.70		"	8.00		96.3	50-150			

Matrix Spike Dup (1919011-MSD2)
Source: P905018-01

Prepared: 05/07/19 1 Analyzed: 05/08/19 2

Gasoline Range Organics (C6-C10)	57.6	20.0	mg/kg	50.0	ND	115	70-130	0.800	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.57		"	8.00		94.7	50-150			

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BP America Production Co.	Project Name: Hardie LS 1A	
PO Box 22024	Project Number: 03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager: Steve Moskal	05/09/19 15:06

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1919016 - DRO Extraction EPA 3570

Blank (1919016-BLK1)

Prepared & Analyzed: 05/08/19 0

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
<i>Surrogate: n-Nonane</i>	<i>42.7</i>		<i>"</i>	<i>50.0</i>		<i>85.5</i>	<i>50-200</i>			

LCS (1919016-BS1)

Prepared & Analyzed: 05/08/19 0

Diesel Range Organics (C10-C28)	453	25.0	mg/kg	500		90.6	38-132			
<i>Surrogate: n-Nonane</i>	<i>43.2</i>		<i>"</i>	<i>50.0</i>		<i>86.5</i>	<i>50-200</i>			

Matrix Spike (1919016-MS1)

Source: P905018-01

Prepared: 05/08/19 0 Analyzed: 05/08/19 1

Diesel Range Organics (C10-C28)	498	25.0	mg/kg	500	99.9	79.5	38-132			
<i>Surrogate: n-Nonane</i>	<i>45.7</i>		<i>"</i>	<i>50.0</i>		<i>91.4</i>	<i>50-200</i>			

Matrix Spike Dup (1919016-MSD1)

Source: P905018-01

Prepared: 05/08/19 0 Analyzed: 05/08/19 1

Diesel Range Organics (C10-C28)	502	25.0	mg/kg	500	99.9	80.4	38-132	0.891	20	
<i>Surrogate: n-Nonane</i>	<i>45.7</i>		<i>"</i>	<i>50.0</i>		<i>91.3</i>	<i>50-200</i>			

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BP America Production Co.	Project Name:	Hardie LS 1A	
PO Box 22024	Project Number:	03143-0424	Reported:
Tulsa OK, 74121-2024	Project Manager:	Steve Moskal	05/09/19 15:06

Anions by 300.0/9056A - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1919012 - Anion Extraction EPA 300.0/9056A

Blank (1919012-BLK1)

Prepared & Analyzed: 05/07/19 1

Chloride	ND	20.0	mg/kg							
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LCS (1919012-BS1)

Prepared & Analyzed: 05/07/19 1

Chloride	250	20.0	mg/kg	250		99.9	90-110			
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Matrix Spike (1919012-MS1)

Source: P905018-01

Prepared & Analyzed: 05/07/19 1

Chloride	257	20.0	mg/kg	250	ND	103	80-120			
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Matrix Spike Dup (1919012-MSD1)

Source: P905018-01

Prepared: 05/07/19 1 Analyzed: 05/07/19 2

Chloride	260	20.0	mg/kg	250	ND	104	80-120	1.40	20	
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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 05/09/19 15:06

Notes and Definitions

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

RPD Relative Percent Difference

** Methods marked with ** are non-accredited methods.

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

Analytical Report

Report Summary

Client: BP America Production Co.

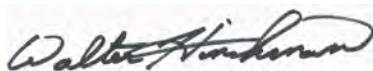
Samples Received: 4/22/2019

Job Number: 03143-0424

Work Order: P904121

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 4/24/19

Walter Hinchman, Laboratory Director



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.
Statement of Data Authenticity: Envirotech, Inc, attests the data reported has not been altered in any way.
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Envirotech, Inc, currently holds the appropriate and available Utah TNI certification NM009792018-1 for the data reported.

BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/24/19 12:10

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Extended South Wall (8'-18')	P904121-01A	Soil	04/22/19	04/22/19	Glass Jar, 4 oz.
Extended East Wall (8'-18')	P904121-02A	Soil	04/22/19	04/22/19	Glass Jar, 4 oz.

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/24/19 12:10

Volatile Organics by EPA 8021 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917001 - Purge and Trap EPA 5030A
Blank (1917001-BLK1)

Prepared: 04/22/19 0 Analyzed: 04/23/19 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							

Surrogate: 4-Bromochlorobenzene-PID 7.85 " 8.00 98.1 50-150

LCS (1917001-BS1)

Prepared: 04/22/19 0 Analyzed: 04/23/19 1

Benzene	4.58	0.0250	mg/kg	5.00		91.6	70-130			
Toluene	4.97	0.0250	"	5.00		99.4	70-130			
Ethylbenzene	4.95	0.0250	"	5.00		99.0	70-130			
p,m-Xylene	10.2	0.0500	"	10.0		102	70-130			
o-Xylene	4.95	0.0250	"	5.00		99.1	70-130			
Total Xylenes	15.1	0.0250	"	15.0		101	70-130			

Surrogate: 4-Bromochlorobenzene-PID 7.90 " 8.00 98.8 50-150

Matrix Spike (1917001-MS1)

Source: P904115-01

Prepared: 04/22/19 0 Analyzed: 04/23/19 1

Benzene	4.56	0.0250	mg/kg	5.00	ND	91.2	54.3-133			
Toluene	4.97	0.0250	"	5.00	ND	99.4	61.4-130			
Ethylbenzene	4.95	0.0250	"	5.00	ND	99.1	61.4-133			
p,m-Xylene	10.2	0.0500	"	10.0	ND	102	63.3-131			
o-Xylene	4.95	0.0250	"	5.00	ND	98.9	63.3-131			
Total Xylenes	15.2	0.0250	"	15.0	ND	101	63.3-131			

Surrogate: 4-Bromochlorobenzene-PID 7.91 " 8.00 98.9 50-150

Matrix Spike Dup (1917001-MSD1)

Source: P904115-01

Prepared: 04/22/19 0 Analyzed: 04/23/19 1

Benzene	4.60	0.0250	mg/kg	5.00	ND	92.1	54.3-133	0.980	20	
Toluene	5.00	0.0250	"	5.00	ND	99.9	61.4-130	0.556	20	
Ethylbenzene	5.01	0.0250	"	5.00	ND	100	61.4-133	1.17	20	
p,m-Xylene	10.3	0.0500	"	10.0	ND	103	63.3-131	0.975	20	
o-Xylene	5.01	0.0250	"	5.00	ND	100	63.3-131	1.34	20	
Total Xylenes	15.3	0.0250	"	15.0	ND	102	63.3-131	1.10	20	

Surrogate: 4-Bromochlorobenzene-PID 7.93 " 8.00 99.1 50-150

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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/24/19 12:10

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917001 - Purge and Trap EPA 5030A

Blank (1917001-BLK1)

Prepared: 04/22/19 0 Analyzed: 04/23/19 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.88		"	8.00		98.5	50-150			

LCS (1917001-BS2)

Prepared: 04/22/19 0 Analyzed: 04/23/19 1

Gasoline Range Organics (C6-C10)	55.9	20.0	mg/kg	50.0		112	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.86		"	8.00		98.2	50-150			

Matrix Spike (1917001-MS2)

Source: P904115-01

Prepared: 04/22/19 0 Analyzed: 04/23/19 1

Gasoline Range Organics (C6-C10)	55.0	20.0	mg/kg	50.0	ND	110	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.89		"	8.00		98.7	50-150			

Matrix Spike Dup (1917001-MSD2)

Source: P904115-01

Prepared: 04/22/19 0 Analyzed: 04/23/19 1

Gasoline Range Organics (C6-C10)	53.9	20.0	mg/kg	50.0	ND	108	70-130	2.06	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.95		"	8.00		99.4	50-150			

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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/24/19 12:10

Nonhalogenated Organics by 8015 - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917012 - DRO Extraction EPA 3570

Blank (1917012-BLK1)

Prepared: 04/22/19 1 Analyzed: 04/23/19 0

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: n-Nonane	49.6		"	50.0		99.3	50-200			

LCS (1917012-BS1)

Prepared: 04/22/19 1 Analyzed: 04/23/19 0

Diesel Range Organics (C10-C28)	509	25.0	mg/kg	500		102	38-132			
Surrogate: n-Nonane	47.0		"	50.0		93.9	50-200			

Matrix Spike (1917012-MS1)

Source: P904114-02

Prepared: 04/22/19 1 Analyzed: 04/23/19 1

Diesel Range Organics (C10-C28)	550	25.0	mg/kg	500	28.1	104	38-132			
Surrogate: n-Nonane	52.2		"	50.0		104	50-200			

Matrix Spike Dup (1917012-MSD1)

Source: P904114-02

Prepared: 04/22/19 1 Analyzed: 04/23/19 1

Diesel Range Organics (C10-C28)	540	25.0	mg/kg	500	28.1	102	38-132	1.80	20	
Surrogate: n-Nonane	48.9		"	50.0		97.9	50-200			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 04/24/19 12:10

Anions by 300.0/9056A - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1917011 - Anion Extraction EPA 300.0/9056A
Blank (1917011-BLK1)

Prepared: 04/22/19 1 Analyzed: 04/22/19 2

Chloride	ND	20.0	mg/kg
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LCS (1917011-BS1)

Prepared: 04/22/19 1 Analyzed: 04/22/19 2

Chloride	252	20.0	mg/kg	250	101	90-110
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Matrix Spike (1917011-MS1)
Source: P904121-01

Prepared: 04/22/19 1 Analyzed: 04/22/19 2

Chloride	363	20.0	mg/kg	250	96.4	107	80-120
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Matrix Spike Dup (1917011-MSD1)
Source: P904121-01

Prepared: 04/22/19 1 Analyzed: 04/22/19 2

Chloride	369	20.0	mg/kg	250	96.4	109	80-120	1.67	20
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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
04/24/19 12:10

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
RPD Relative Percent Difference
** Methods marked with ** are non-accredited methods.

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Analytical Report

Report Summary

Client: BP America Production Co.

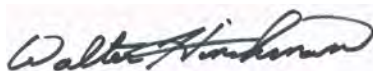
Samples Received: 7/25/2019

Job Number: 03143-0424

Work Order: P907096

Project Name/Location: Hardie LS 1A

Report Reviewed By:



Date: 8/2/19

Walter Hinchman, Laboratory Director



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.
Statement of Data Authenticity: Envirotech, Inc, attests the data reported has not been altered in any way.
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Envirotech, Inc, currently holds the appropriate and available Utah TNI certification NM009792018-1 for the data reported.

BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
08/02/19 16:56

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
TSP- VZ #1	P907096-01A	Soil	07/25/19	07/25/19	Glass Jar, 4 oz.
TSP- VZ #2	P907096-02A	Soil	07/25/19	07/25/19	Glass Jar, 4 oz.
TSP- VZ #3	P907096-03A	Soil	07/25/19	07/25/19	Glass Jar, 4 oz.
TSP- VZ #4	P907096-04A	Soil	07/25/19	07/25/19	Glass Jar, 4 oz.

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 08/02/19 16:56

Volatile Organics by EPA 8021 - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1931030 - Purge and Trap EPA 5030A
Blank (1931030-BLK1)

Prepared: 07/31/19 0 Analyzed: 08/01/19 1

Benzene	ND	0.0250	mg/kg							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	"							
p,m-Xylene	ND	0.0500	"							
o-Xylene	ND	0.0250	"							
Total Xylenes	ND	0.0250	"							

Surrogate: 4-Bromochlorobenzene-PID 8.39 " 8.00 105 50-150

LCS (1931030-BS1)

Prepared: 07/31/19 0 Analyzed: 08/01/19 1

Benzene	4.13	0.0250	mg/kg	5.00		82.5	70-130			
Toluene	4.79	0.0250	"	5.00		95.8	70-130			
Ethylbenzene	4.91	0.0250	"	5.00		98.2	70-130			
p,m-Xylene	10.1	0.0500	"	10.0		101	70-130			
o-Xylene	4.92	0.0250	"	5.00		98.4	70-130			
Total Xylenes	15.0	0.0250	"	15.0		100	70-130			

Surrogate: 4-Bromochlorobenzene-PID 8.48 " 8.00 106 50-150

Matrix Spike (1931030-MS1)

Source: P907092-01

Prepared: 07/31/19 0 Analyzed: 08/01/19 1

Benzene	3.91	0.0250	mg/kg	5.00	ND	78.2	54.3-133			
Toluene	4.52	0.0250	"	5.00	ND	90.4	61.4-130			
Ethylbenzene	4.65	0.0250	"	5.00	ND	93.0	61.4-133			
p,m-Xylene	9.56	0.0500	"	10.0	ND	95.6	63.3-131			
o-Xylene	4.65	0.0250	"	5.00	ND	93.1	63.3-131			
Total Xylenes	14.2	0.0250	"	15.0	ND	94.7	63.3-131			

Surrogate: 4-Bromochlorobenzene-PID 8.51 " 8.00 106 50-150

Matrix Spike Dup (1931030-MSD1)

Source: P907092-01

Prepared: 07/31/19 0 Analyzed: 08/01/19 1

Benzene	3.84	0.0250	mg/kg	5.00	ND	76.8	54.3-133	1.91	20	
Toluene	4.46	0.0250	"	5.00	ND	89.2	61.4-130	1.28	20	
Ethylbenzene	4.58	0.0250	"	5.00	ND	91.6	61.4-133	1.50	20	
p,m-Xylene	9.43	0.0500	"	10.0	ND	94.3	63.3-131	1.37	20	
o-Xylene	4.59	0.0250	"	5.00	ND	91.8	63.3-131	1.36	20	
Total Xylenes	14.0	0.0250	"	15.0	ND	93.5	63.3-131	1.37	20	

Surrogate: 4-Bromochlorobenzene-PID 8.44 " 8.00 105 50-150

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 08/02/19 16:56

Nonhalogenated Organics by 8015 - DRO/ORO - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1931038 - DRO Extraction EPA 3570
Blank (1931038-BLK1)

Prepared: 07/31/19 1 Analyzed: 08/01/19 1

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg							
Oil Range Organics (C28-C40)	ND	50.0	"							
Surrogate: n-Nonane	37.8		"	50.0		75.6	50-200			

LCS (1931038-BS1)

Prepared: 07/31/19 1 Analyzed: 08/01/19 1

Diesel Range Organics (C10-C28)	476	25.0	mg/kg	500		95.1	38-132			
Surrogate: n-Nonane	38.4		"	50.0		76.7	50-200			

Matrix Spike (1931038-MS1)

Source: P907096-01

Prepared: 07/31/19 1 Analyzed: 08/01/19 1

Diesel Range Organics (C10-C28)	884	25.0	mg/kg	500	283	120	38-132			
Surrogate: n-Nonane	34.5		"	50.0		69.0	50-200			

Matrix Spike Dup (1931038-MSD1)

Source: P907096-01

Prepared: 07/31/19 1 Analyzed: 08/01/19 1

Diesel Range Organics (C10-C28)	846	25.0	mg/kg	500	283	112	38-132	4.41	20	
Surrogate: n-Nonane	40.0		"	50.0		80.0	50-200			

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BP America Production Co.
 PO Box 22024
 Tulsa OK, 74121-2024

 Project Name: Hardie LS 1A
 Project Number: 03143-0424
 Project Manager: Steve Moskal

Reported:
 08/02/19 16:56

Nonhalogenated Organics by 8015 - GRO - Quality Control
Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1931030 - Purge and Trap EPA 5030A
Blank (1931030-BLK1)

Prepared: 07/31/19 0 Analyzed: 08/01/19 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.51		"	8.00		93.9	50-150			

LCS (1931030-BS2)

Prepared: 07/31/19 0 Analyzed: 08/01/19 1

Gasoline Range Organics (C6-C10)	50.5	20.0	mg/kg	50.0		101	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.71		"	8.00		96.3	50-150			

Matrix Spike (1931030-MS2)

Source: P907092-01

Prepared: 07/31/19 0 Analyzed: 08/01/19 1

Gasoline Range Organics (C6-C10)	49.8	20.0	mg/kg	50.0	ND	99.5	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.60		"	8.00		95.0	50-150			

Matrix Spike Dup (1931030-MSD2)

Source: P907092-01

Prepared: 07/31/19 0 Analyzed: 08/01/19 1

Gasoline Range Organics (C6-C10)	49.6	20.0	mg/kg	50.0	ND	99.3	70-130	0.262	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.59		"	8.00		94.9	50-150			

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BP America Production Co.	Project Name:	Hardie LS 1A	Reported: 08/02/19 16:56
PO Box 22024	Project Number:	03143-0424	
Tulsa OK, 74121-2024	Project Manager:	Steve Moskal	

Anions by 300.0/9056A - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1931040 - Anion Extraction EPA 300.0/9056A

Blank (1931040-BLK1)

Prepared: 07/31/19 2 Analyzed: 08/01/19 1

Chloride	ND	20.0	mg/kg							
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LCS (1931040-BS1)

Prepared: 07/31/19 2 Analyzed: 08/01/19 1

Chloride	267	20.0	mg/kg	250		107	90-110			
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Matrix Spike (1931040-MS1)

Source: P907092-01

Prepared: 07/31/19 2 Analyzed: 08/01/19 1

Chloride	264	20.0	mg/kg	250	ND	106	80-120			
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Matrix Spike Dup (1931040-MSD1)

Source: P907092-01

Prepared: 07/31/19 2 Analyzed: 08/01/19 1

Chloride	269	20.0	mg/kg	250	ND	108	80-120	1.70	20	
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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.

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BP America Production Co.
PO Box 22024
Tulsa OK, 74121-2024

Project Name: Hardie LS 1A
Project Number: 03143-0424
Project Manager: Steve Moskal

Reported:
08/02/19 16:56

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
RPD Relative Percent Difference
** Methods marked with ** are non-accredited methods.

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