

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	
District RP	
Facility ID	
Application ID	

## Release Notification

NMOC

JAN 17 2019

### Responsible Party

DISTRICT III

Responsible Party: BP America Production Co.	OGRID: 778	Initial Report/Remediation Plan
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		

NVF 1901741056

### Location of Release Source

Latitude: 36.953402°

Longitude: -107.954895°

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Barnes LS 008A	Site Type: Natural Gas Production Well Pad
Date Release Discovered: December 10, 2018	API#: 30-045-22460

Unit Letter	Section	Township	Range	County
I	26	T32N	R11W	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)

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

#### Cause of Release:

BGT closure sampling indicated soil impacts. The BGT removed for closure and the impacted area remediated to NMAC 19.15.29 standards. Full delineation of the release has not yet been performed. The well site is operated by BP Production.

16


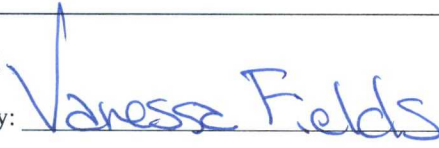
State of New Mexico  
Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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*

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:  	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Steven Moskal</u>	Title: <u>Environmental Coordinator</u>
Signature: <u></u>	Date: <u>January 16, 2019</u>
email: <u>steven.moskal@bpx.com</u>	Telephone: <u>(505) 330-9179</u>
<b>OCD Only</b> Received by: <u></u>	
Date: <u>1/17/2019</u>	

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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>127</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

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

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

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



State of New Mexico  
Oil Conservation Division

Incident ID	
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Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Incident ID	
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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: January 16, 2019

email: steven.moskal@bpx.com

Telephone: (505) 330-9179

**OCD Only**

Received by: Vanessa Fields Date: 1/17/2019

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

Signature: 

Date: 1/17/2019

Incident ID	
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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: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

### 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: \_\_\_\_\_



CLIENT:

BP

**BLAGG ENGINEERING, INC.**  
**P.O. BOX 87, BLOOMFIELD, NM 87413**  
**(505) 632-1199**

API #: 30045 22460

TANK ID (if applicable): B

## FIELD REPORT:

(circle one): BGT CONFIRMATION / RELEASE INVESTIGATION / OTHER:

PAGE #: 1 of

## SITE INFORMATION:

SITE NAME: GARNES LS #8A

DATE STARTED: 12/10/18

QUAD/UNIT: I SEC: 26 TWP: 32 N RING: 11 W PM: NM CNTY: SJ ST: NM

DATE FINISHED:

1/4-1/4/FOOTAGE: 1500'S/1150'E NE/SE LEASE TYPE: FEDERAL STATE / FEE / INDIANENVIRONMENTAL SPECIALIST(S): NJV/JCBLEASE #: SF 078655 PROD. FORMATION: MV CONTRACTOR: STRIKE BP - J. GONZALES

## REFERENCE POINT:

WELL HEAD (W.H.) GPS COORD.: 36.95311 x 107.95472 GL ELEV.: 6,326

1) Z1 BGT (SW/DB) - B GPS COORD.: 36.953402 x 107.954895 DISTANCE/BEARING FROM WH: 112', N25.5W  
 2) GPS COORD.: DISTANCE/BEARING FROM WH:  
 3) GPS COORD.: DISTANCE/BEARING FROM WH:  
 4) GPS COORD.: DISTANCE/BEARING FROM WH:

## SAMPLING DATA:

CHAIN OF CUSTODY RECORD(S) # OR LAB USED:

HALL

SAMPLE ID	SAMPLE DATE	SAMPLE TIME	LAB ANALYSIS	OVM READING (ppm)
1) SPC-TB C 7' (21)-B	12/10/18	1315	8015B/8021B/300.0 (CI)	0.2
2) GRS C 10' (21)-B	12/10/18	1322	" / " / "	2,994
3) SAMPLE ID:	SAMPLE DATE:	SAMPLE TIME:	LAB ANALYSIS:	
4) SAMPLE ID:	SAMPLE DATE:	SAMPLE TIME:	LAB ANALYSIS:	
5) SAMPLE ID:	SAMPLE DATE:	SAMPLE TIME:	LAB ANALYSIS:	

## SOIL DESCRIPTION:

SOIL TYPE: SAND SILTY SAND / SILT / SILTY CLAY / CLAY / GRAVEL / OTHERSOIL COLOR: MOSTLY DARK YELLOWISH ORANGECOHESION (ALL OTHERS): NON COHESIVE / SLIGHTLY COHESIVE / COHESIVE / HIGHLY COHESIVECONSISTENCY (NON COHESIVE SOILS): LOOSE FIRM / DENSE / VERY DENSEMOISTURE: DRY / SLIGHTLY MOIST / MOIST / WET / SATURATED / SUPER SATURATEDSAMPLE TYPE: GRAB / COMPOSITE # OF PTS. 5DISCOLORATION/STAINING OBSERVED: YES / NO EXPLANATION: VARYING GRAY (7.5' - 10')

PLASTICITY (CLAYS): NON PLASTIC / SLIGHTLY PLASTIC / COHESIVE / MEDIUM PLASTIC / HIGHLY PLASTIC

DENSITY (COHESIVE CLAYS &amp; SILTS): SOFT / FIRM / STIFF / VERY STIFF / HARD

HC ODOR DETECTED: YES / NO EXPLANATION: DISCOLORED SOILS ONLY.ANY AREAS DISPLAYING WETNESS: YES / NO EXPLANATION:

## SITE OBSERVATIONS:

LOST INTEGRITY OF EQUIPMENT: YES / NO EXPLANATION: UNDETERMINED @ PRESENT TIME.APPARENT EVIDENCE OF A RELEASE OBSERVED AND/OR OCCURRED: YES / NO EXPLANATION: DISCOLORED SOIL & HC ODOR.EQUIPMENT SET OVER RECLAIMED AREA: YES / NO EXPLANATION:OTHER: NMOCD / BLM REP(S) PRESENT / NOT PRESENT TO WITNESS CONFIRMATION SAMPLING.

EXCAVATION DIMENSION ESTIMATION:

ft. X

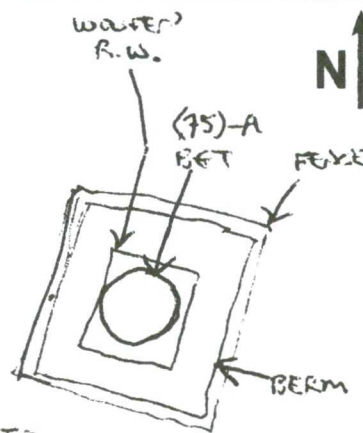
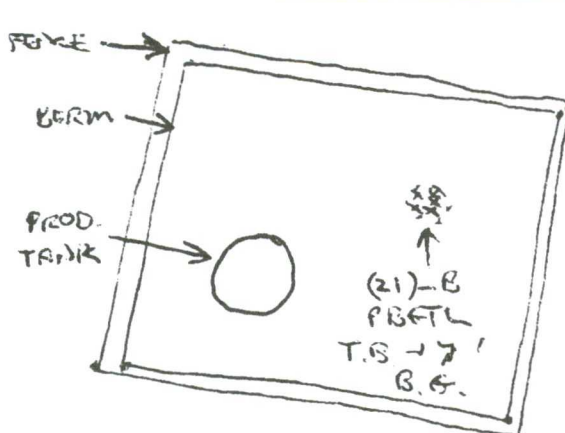
ft. X

ft.

EXCAVATION ESTIMATION (Cubic Yards):

DEPTH TO GROUNDWATER: &gt;100' NEAREST WATER SOURCE: &gt;1,000' NEAREST SURFACE WATER: 300' x 1,000' NMOCD TPH CLOSURE STD: 2,500 ppm

## SITE SKETCH

BGT Located: off / on sitePLOT PLAN circle: attached

N

OVM CALIB. READ. = 101.6 ppm RF=1.00  
 OVM CALIB. GAS = 100 ppm  
 TIME: 1:40 am DATE: 12/10/18

## MISCELL. NOTES

SID#: 190040003402

REF #:

VID: VHIXON EV 11

PJ #:

Permit date(s):

OCD Appr. date(s):

Tank ID OVM = Organic Vapor Meter ppm = parts per million

BGT Sidewalls Visible: Y / N

BGT Sidewalls Visible: Y / N

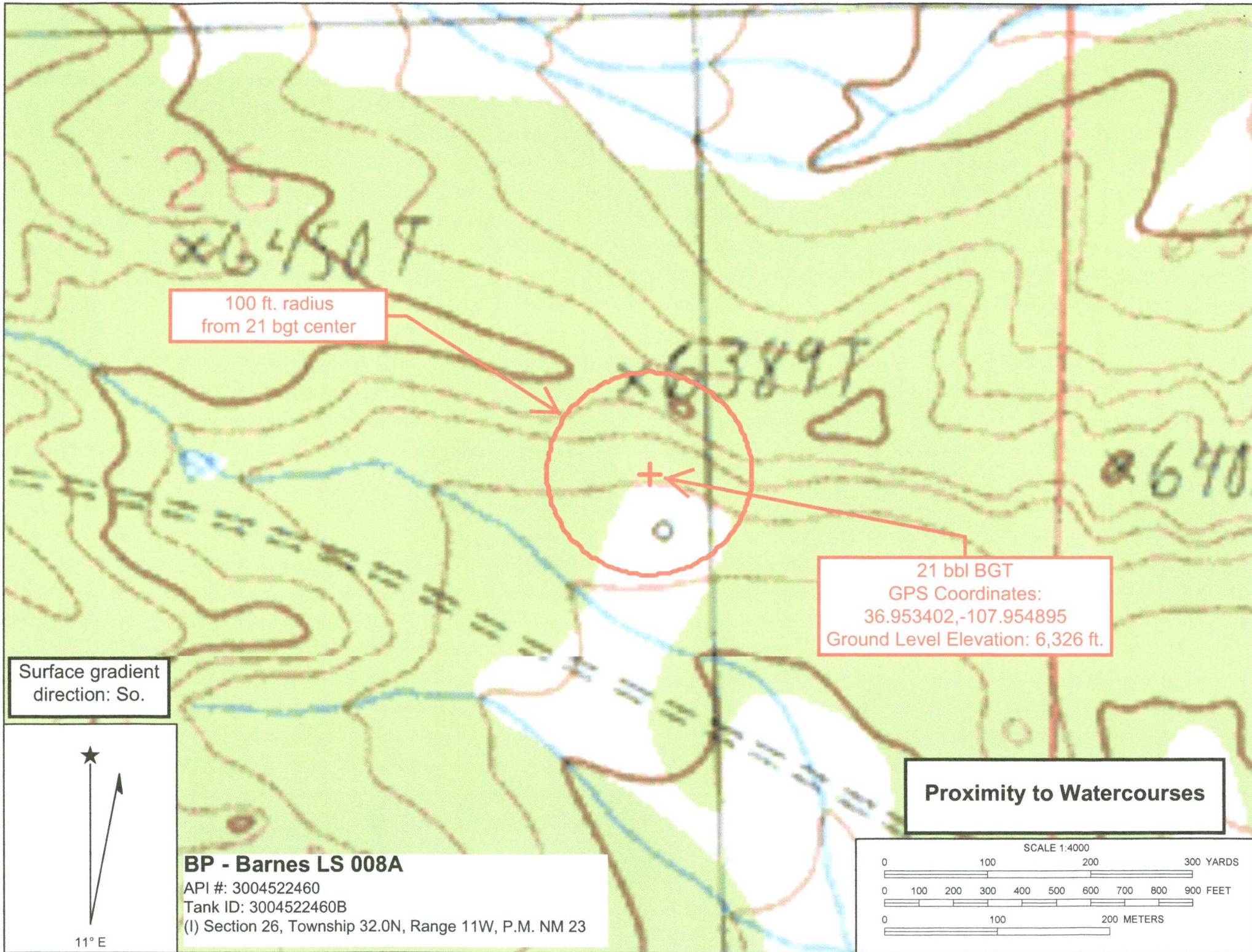
BGT Sidewalls Visible: Y / N

Magnetic declination: 10° E

NOTES: BGT = BELOW-GRADE TANK; E.D. = EXCAVATION DEPRESSION; B.G. = BELOW GRADE; B = BELOW; T.H. = TEST HOLE; - = APPROX.; W.H. = WELL HEAD;  
 T.B. = TANK BOTTOM; PBGT = PREVIOUS BELOW-GRADE TANK LOCATION; SPD = SAMPLE POINT DESIGNATION; R.W. = RETAINING WALL; NA = NOT APPLICABLE OR NOT AVAILABLE; SW - SINGLE WALL; DW - DOUBLE WALL; SB - SINGLE BOTTOM; DB - DOUBLE BOTTOM.

NOTES: GOOGLE EARTH IMAGERY DATE: 3/15/2015 . ONSITE: 12/10/18







## BP - Barnes LS 008A

(I) Section 26, T32N, R11W  
API #: 3004522460

Imagery date: 3/15/2015  
WH GPS Coord.: 36.953124,-107.954729  
21 BGT GPS Coord.: 36.953402,-107.954895

300 foot radius  
from 21 bgt center

21 bbl bgt

WH

Google Earth

© 2018 Google



300 ft



# Barnes LS 008A Depth to Water

Sec 26, T32N, R11W  
Loc: 36.953124, -107.954729

## Legend

- Barnes LS 008A BGT (Elev. 6340)
- Line Measure (7,880')
- SJ 01327 (Elev. 6263; DTW 50')

SJ 01327 (Elev. 6263, DTW 50') SJ 01327

Rd 2300

Barnes LS 008A BGT (Elev. 6340)

1 mi







# New Mexico Office of the State Engineer

## Wells with Well Log Information

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,  
O=orphaned,  
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)  
(quarters are smallest to largest)

(NAD83 UTM in meters)

(in feet)

POD Number	POD	Sub-Code	basin	County	Source	q	q	q	6416	4	Sec	Tws	Rng	X	Y	Distance	Start Date	Finish Date	Log File Date	Depth Well	Depth Water	Driller	License Number
<a href="#">SJ 00021</a>		SJ	SJ	Shallow		3	23	32N	11W					236177	4095304*	1714	10/16/1953	10/24/1953	12/03/1953	585		CONLEY COX	
<a href="#">SJ 01327</a>		SJ	SJ	Shallow		3	2	2	23	32N	11W			237092	4096187*	2441	01/20/1981	02/02/1981	02/13/1981	90	50	HARGIS, JOHN C.	724
<a href="#">SJ 00017</a>		SJ	SJ	Shallow		2	24	32N	11W					238546	4096052*	2824	04/10/1953	04/10/1953	11/17/1953	105		CONLEY COX	
<a href="#">SJ 01356</a>		SJAR	SJ	Shallow		3	3	31	32N	10W				239013	4091829*	2853	02/16/1981	02/20/1981	03/02/1981	65	50	TERRY HOOD	717

Record Count: 4

### UTMNAD83 Radius Search (in meters):

Easting (X): 236906

Northing (Y): 4093752.66

Radius: 3000

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.




# New Mexico Office of the State Engineer

## Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

<b>Well Tag</b>	<b>POD Number</b>	<b>Q64 Q16 Q4</b>	<b>Sec</b>	<b>Tws</b>	<b>Rng</b>	<b>X</b>	<b>Y</b>
	SJ 01327	3 2 2	23	32N	11W	237092	4096187* 

**Driller License:** 724

**Driller Company:** HARGIS, JOHN C.

**Driller Name:** HARGIS, JOHN C.

**Drill Start Date:** 01/20/1981

**Drill Finish Date:** 02/02/1981

**Plug Date:**

**Log File Date:** 02/13/1981

**PCW Rcv Date:**

**Source:** Shallow

**Pump Type:**

**Pipe Discharge Size:**

**Estimated Yield:** 4 GPM

**Casing Size:** 8.00

**Depth Well:** 90 feet

**Depth Water:** 50 feet

**Water Bearing Stratifications:**

**Top Bottom Description**

80	90	Sandstone/Gravel/Conglomerate
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**Casing Perforations:**

**Top Bottom**

20	60
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80	90
----	----

\*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.





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# *New Mexico Office of the State Engineer* **Wells Without Well Log Information**

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No wells found.

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 236906

**Northing (Y):** 4093752.66

**Radius:** 3000



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## *New Mexico Office of the State Engineer*

# **Point of Diversion with Meter Attached**

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No PODs found.

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 236906

**Northing (Y):** 4093752.66

**Radius:** 3000

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The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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## **BP Remediation Plan**

To: Cory Smith, Vanessa Fields(NMOCD), Whitney Thomas (BLM)  
From: Steve Moskal (BP)  
CC: Jeff Blagg (Blagg Engineering), Emmanuel Adelaye (BLM)  
Date: 1/16/2019  
Re: Barnes LS 008A - Ex-situ Soil Remediation – Soil Shredding  
(I) S-26, T32N, R11W; API #30-045-22460; Serial No.:NM-SF-078655

Dear Mr. Smith, Mrs. Fields and Mrs. Thomas,

The Barnes LS 008A site is an active natural gas production well location within the San Juan Basin Gas Field in San Juan County, New Mexico. The site is located on land managed by the Bureau of Land Management Farmington Field Office (BLM-FFO) and is in an area primarily used for oil and gas production and recreation.

### **Background**

Impacts were identified at the location on December 10, 2018 during a below grade tank closure. Full delineation of the release has not yet been performed. The well site is operated by BP Production.

### **Site Ranking**

Following the NMOCD site ranking criteria, the site closure standard is 1,000 ppm GRO&DRO and up to 2,500 ppm including MRO hydrocarbons, 50 ppm BTEX and 10 ppm benzene:

- Depth to groundwater >100' (0 points)
- Nearest surface water source >1,000' (0 points)
- Distance to nearest surface water body or coarse >300' <1,000' (10 points)

### **Proposed Remediation – Soil Shredding**

BP proposes to employ soil shredding on site. The previous remediation of the site was performed using soil shredding and was proven successful. Soil shredding involves the excavation of the impacted soil which is then placed in processing equipment, such as a hammer mill or pug mill, to mechanically process and break-up the soil. The soil becomes more uniform and is aerated during the mechanical processing. The soil is then ejected from the processing equipment and a chemical oxidizer is applied, in this case, a 35% solution of hydrogen peroxide and water. The applied concentration of hydrogen peroxide typically ranges from 3-8%. The hydrogen peroxide quickly oxidizes the hydrocarbon impacts (reagents), resulting in soil, water and carbon dioxide (products). Once the soil is processed, it is stockpiled and allowed to sit for approximately 2-5 days of residence time. A composite soil sample is collected from each segregated stockpile and submitted for laboratory analysis to determine the effectiveness of the ex-situ remediation process. If the laboratory results are of acceptable levels, the soil will be used as backfill to the excavation; if results are unsatisfactory, the soil is passed through the process once more and a subsequent laboratory sample will be collected for laboratory confirmation as described before. Typically, 24 hours of notice is provided to the regulatory agencies for the opportunity to observe and witness the stockpile sampling.

BP proposes to perform the remediation of hydrocarbon impacts by the means of soil shredding. A conservative estimate of approximately 400 cubic yards of soil will be treated through the soil shredding process. BP proposes to treat the impacted soil and segregate windrow stockpiles broken into 100 cubic

yard increments. A single, five-point composite, soil sample will be collected to represent each 100 cubic yard stockpile. If necessary, once a baseline of approximately 1,000 cubic yards of soil is consistently and successfully treated, BP will propose to decrease the sampling frequency to 500 cubic yard stockpile segments. The 500 cubic yard sampling modification will be discussed with the NMOCD and BLM for approval and input prior to implementation. BP would expect to have a sampling modification approval from the agencies within 48 working hours from the time of request. The remediation will then continue until complete and sampling will be based on the regulatory agencies approved sampling plan.

Excavation sampling will be in accordance with a typical dig and haul. The sidewalls and base of the excavation will be sampled in a frequency based on the size and progress of the excavation. Agency notification of excavation sampling will also be issued in advanced, 24-48 hours if possible.

BP is currently anticipates mobilizing to the location in February 2019, pending the approval of this plan by all regulatory agencies. BP plans to shut the well in and remove all necessary surface equipment. BP requests a 50' off pad buffer be included in the approval of this plan, in case additional room is needed or if impacts migrate to the edge of the well pad surface.

It is understood, that if soil remediation is not successful via the soil shredding, an alternative method such as a dig and haul or soil vapor extraction will be necessary. BP will be in close communications with the agencies in the event an alternative remediation method is required.

### **Site Closure and Reporting**

Once the soil shredding process is complete, the excavated area will be fully backfilled and compacted, and surface equipment will be re-set. Collection of vadose zone samples will be performed to ensure no residual impacts remain following the remedial activities. A minimum of 24-hour notice will be provided to the agencies prior to the collection of these samples. Any necessary interim reclamation will be performed. Final reclamation of the well pad will occur at a later date, once the natural gas production well is plugged and abandoned.

A final remediation report will be delivered to NMOCD and BLM for approval of final site closure regarding the excavation and soil shredding activities within 60 days of the receipt of the final laboratory report.