For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office. For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Below-Grade Tank, or						
Proposed Alternative Method Permit or Closure Plan Application						
Type of action: Below grade tank registration Permit of a pit or proposed alternative method Closure of a pit, below-grade tank, or proposed alternative method Modification to an existing permit/or registration Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank,						
or proposed alternative method						
Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request						
Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.						
Deperator: BP AMERICA PRODUCTION COMPANY OGRID #: 778						
Address: 200 ENERGY COURT, FARMINGTON, NM 87401						
Facility or well name:PRITCHARD SWD 001						
API Number:         3004528351         OCD Permit Number:						
U/L or Qtr/Qtr <u>C</u> Section <u>34.0</u> Township <u>31.0N</u> Range <u>09W</u> County: <u>San Juan</u>						
Center of Proposed Design: Latitude <u>36.859953</u> Longitude <u>-107.770524</u> NAD: □1927 ⊠ 1983						
Surface Owner: 🛛 Federal 🗔 State 🗋 Private 🗋 Tribal Trust or Indian Allotment						
2.       Pit:       Subsection F, G or J of 19.15.17.11 NMAC       RCVD NDV 26 '13 OIL CONS. DIV.         Temporary:       Drilling       Workover       DIST. 3         Permanent       Emergency       Cavitation       P&A       Multi-Well Fluid Management       Low Chloride Drilling Fluid       yes       no         Lined       Unlined       Liner type:       Thickness       mil       LLDPE       HDPE       PVC       Other						
Below-grade tank: Subsection 1 of 19.15.17.11 NMAC TANK ID: B						
Volume:95bbl Type of fluid:PRODUCED WATER						
Tank Construction material: STEEL						
Secondary containment with leak detection 🗌 Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off						
□ Visible sidewalls and liner □ Visible sidewalls only □ Other						
4.						
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.						
<ul> <li>5.</li> <li>Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)</li> <li>Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)</li> <li>Four foot height, four strands of barbed wire evenly spaced between one and four feet</li> <li>Alternate. Please specify</li></ul>						

<u>Netting</u>: Subsection E of 19.15.17.11 NMAC (Applies to permanent pits and permanent open top tanks)

Screen Netting & Other steel grating over tank

Monthly inspections (If netting or screening is not physically feasible)

Signs: Subsection C of 19.15.17.11 NMAC

12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

Signed in compliance with 19.15.16.8 NMAC

#### Variances and Exceptions:

6.

7.

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

- □ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.
- Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9. <u>Siting Criteria (regarding permitting)</u> : 19.15.17.10 NMAC Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Siting criteria does not apply to drying pads or above-grade tanks.			
General siting			
Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank. - ☑ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells	□ Yes ⊠ No □ NA		
Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit. NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	□ Yes □ No ⊠ NA		
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. (Does not apply to below grade tanks) - Written confirmation or verification from the municipality; Written approval obtained from the municipality	🗌 Yes 🗋 No		
Within the area overlying a subsurface mine. (Does not apply to below grade tanks) - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	🗌 Yes 🗌 No		
<ul> <li>Within an unstable area. (Does not apply to below grade tanks)</li> <li>Engineering measures incorporated into the design; NM Bureau of Geology &amp; Mineral Resources; USGS; NM Geological Society; Topographic map</li> </ul>	🗌 Yes 🗌 No		
Within a 100-year floodplain. (Does not apply to below grade tanks) - FEMA map	🗌 Yes 🗌 No		
Below Grade Tanks			
<ul> <li>Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark).</li> <li>Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	🗌 Yes 🖾 No		
Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;.         -       NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	🗌 Yes 🖾 No		
Temporary Pit using Low Chloride Drilling Fluid (maximum chloride content 15,000 mg/liter)			
<ul> <li>Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.)</li> <li>Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	🗌 Yes 🗍 No		
<ul> <li>Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application.</li> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	🗌 Yes 🗌 No		
Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application. NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	🗋 Yes 🗌 No		

Within 100 feet of a wetland.         -       US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	Yes No
<u>Temporary Pit Non-low chloride drilling fluid</u>	
Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	🗌 Yes 🗍 No
<ul> <li>Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</li> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	🗋 Yes 🗌 No
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, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application; - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	🗌 Yes 🗍 No
<ul> <li>Within 300 feet of a wetland.</li> <li>US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	🗌 Yes 🗌 No
<u>Permanent Pit or Multi-Well Fluid Management Pit</u>	
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).	
- Topographic map; Visual inspection (certification) of the proposed site	🗌 Yes 🗌 No
<ul> <li>Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</li> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	🗌 Yes 🗍 No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application.	_
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	🗌 Yes 🗌 No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	Yes No
10. Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 N	MAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the doc attached.	
<ul> <li>Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC</li> <li>Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9</li> <li>Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC</li> </ul>	NMAC
<ul> <li>Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC</li> <li>Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC</li> </ul>	
Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.1 and 19.15.17.13 NMAC	15.17.9 NMAC
Previously Approved Design (attach copy of design) API Number: or Permit Number:	
11. <u>Multi-Well Fluid Management Pit Checklist</u> : Subsection B of 19.15.17.9 NMAC Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the doc attached.	uments are
<ul> <li>Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC</li> <li>Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC</li> <li>A List of wells with approved application for permit to drill associated with the pit.</li> <li>Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.</li> <li>and 19.15.17.13 NMAC</li> </ul>	15.17.9 NMAC
<ul> <li>Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC</li> <li>Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC</li> </ul>	
Previously Approved Design (attach copy of design) API Number: or Permit Number:	

<sup>12.</sup> <u>Permanent Pits Permit Application Checklist</u> : Subsection B of 19.15.17.9 NMAC <i>Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the a</i>	locuments are
attached.         Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC         Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC         Climatological Factors Assessment         Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC         Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC         Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC         Quality Control/Quality Assurance Construction and Installation Plan         Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.11 NMAC         Preeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC         Nuisance or Hazardous Odors, including H <sub>2</sub> S, Prevention Plan         Emergency Response Plan         Oil Field Waste Stream Characterization         Monitoring and Inspection Plan         Erosion Control Plan         Erosion Control Plan	
13. <u>Proposed Closure</u> : 19.15.17.13 NMAC	
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan. Type: Drilling Workover Emergency Cavitation P&A Permanent Pit Below-grade Tank Multi-well Fl	uid Management Pit
Proposed Closure Method: Waste Excavation and Removal	
<ul> <li>Waste Removal (Closed-loop systems only)</li> <li>On-site Closure Method (Only for temporary pits and closed-loop systems)</li> </ul>	
In-place Burial On-site Trench Burial	
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be a closure plan. Please indicate, by a check mark in the box, that the documents are attached.	nttached to the
15. <u>Siting Criteria (regarding on-site closure methods only)</u> : 19.15.17.10 NMAC Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable sour provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. P 19.15.17.10 NMAC for guidance.	
Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	Yes No NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☐ No ☐ NA
<ul> <li>Ground water is more than 100 feet below the bottom of the buried waste.</li> <li>NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells</li> </ul>	Yes No NA
<ul> <li>Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).</li> <li>Topographic map; Visual inspection (certification) of the proposed site</li> </ul>	🗌 Yes 🗌 No
<ul> <li>Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.</li> <li>Visual inspection (certification) of the proposed site; Aerial photo; Satellite image</li> </ul>	🛄 Yes 🗌 No
<ul> <li>Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application.</li> <li>NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site</li> </ul>	🗌 Yes 🗌 No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	🗌 Yes 🗌 No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	🗌 Yes 🗌 No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	

adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approv	al obtained from the municipality	🗌 Yes 🗌 No		
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining	and Mineral Division	Yes 🗌 No		
Within an unstable area.				
<ul> <li>Engineering measures incorporated into the design; NM Bureau of Geolog Society; Topographic map</li> </ul>	y & Mineral Resources; USGS; NM Geological	🗌 Yes 🗌 No		
Within a 100-year floodplain. - FEMA map		🗍 Yes 🗍 No		
16.       On-Site Closure Plan Checklist: (19.15.17.13 NMAC) Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.				
17. Operator Application Certification:				
I hereby certify that the information submitted with this application is true, accurate	e and complete to the best of my knowledge and beli	ief.		
Name (Print): JEFFREY PEACE	Title: FIELD ENVIRONMENTAL ADV	VISOR		
Signature: Joffrey Peace	Date: November 22, 2013			
e-mail address: Peace.Jeffrey @ bp.com	Telephone: 505-326-9479			
e-mail address: Peace.Jeffrey @ bp.com 18. OCD Approval: Permit Application (including closure plan) Closure Pla OCD Representative Signature:		2013		
18.       OCD Approval: Application (including closure plan)       Closure Plan         OCD Representative Signature:       ONAL D. Kelly         Title:       Compliance       Compliance         19.       19.	n (only) 🗌 OCD Conditions (see attachment) Approval Date: 11/26/ OCD Permit Number:	12013		
18.       OCD Approval: Application (including closure plan)       Closure Plan         OCD Representative Signature:       ONAL D. Kelly         Title:       Compliance       Office	n (only) OCD Conditions (see attachment) Approval Date: 11/26/ OCD Permit Number: MAC implementing any closure activities and submitting e completion of the closure activities. Please do not			
18.       OCD Approval: Permit Application (including closure plan)       Closure Plan         OCD Representative Signature:       ONAL, D. Kelly       Closure Plan         Title:       OMAL, D. Kelly       Closure Plan         19.       Closure Report (required within 60 days of closure completion):       19.15.17.13 N         Instructions:       Operators are required to obtain an approved closure plan prior to The closure report is required to be submitted to the division within 60 days of the submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the division within 60 days of the closure report is required to be submitted to the closure report is required to be submitted to the closure report is required to be submitted to the closure report is required to be submitted to the closure report is required	n (only) OCD Conditions (see attachment) Approval Date: 11/26/ OCD Permit Number: MAC implementing any closure activities and submitting e completion of the closure activities. Please do not			
18.       OCD Approval: Permit Application (including closure plan)       Closure Plan         OCD Representative Signature:       ONAL       Permit Application (including closure plan)       Closure Plan         Title:       Compliance       Office       Permit Application (including closure plan)       Plan         19.       Closure Report (required within 60 days of closure completion):       19.15.17.13 N         Instructions: Operators are required to obtain an approved closure plan prior to The closure report is required to be submitted to the division within 60 days of th section of the form until an approved closure plan has been obtained and the closure Closure Method:	n (only) OCD Conditions (see attachment) Approval Date: 1/2b/ OCD Permit Number: MAC implementing any closure activities and submitting e completion of the closure activities. Please do not sure activities have been completed.	complete this		
18.       OCD Approval: Permit Application (including closure plan) Closure Plan         OCD Representative Signature:       ONAL D. Kelly         Title:       ONAL D. Kelly         19.       Closure Report (required within 60 days of closure completion):       19.15.17.13 N         Instructions: Operators are required to obtain an approved closure plan prior to The closure report is required to be submitted to the division within 60 days of th section of the form until an approved closure plan has been obtained and the closure Closure Method:         20.         21.         22.         23.         24.         25.         26.         27.         28.         29.         20.         20.	n (only) OCD Conditions (see attachment) Approval Date: 1/2b/ OCD Permit Number: MMAC implementing any closure activities and submitting e completion of the closure activities. Please do not sure activities have been completed. Closure Completion Date: ive Closure Method □ Waste Removal (Closed-lo ns must be attached to the closure report. Please in	bop systems only)		

22. Operator Closure Certification:	
I hereby certify that the information and attachments submitted with this closure report belief. I also certify that the closure complies with all applicable closure requirements	
Name (Print):	Title:
Signature:	Date:
e-mail address:	Telephone:

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## SITING AND HYDRO-GEOLOGICAL REPORT FOR PRITCHARD SWD 001

#### SITING CRITERIA 19.15.17.10 NMAC

Depth to groundwater at the site is estimated to be between 50 and 100 feet. Local topography and proximity to adjacent water features were also considered. Based on a search of the the New Mexico State Engineer's Office (attached) and multiple database sources provided as an aerial map (Figure 1), there are no freshwater wells or springs used for public or livestock consumption within 200 horizontal feet of the below-grade tank (BGT). A topographic map (Figure 2) demonstrates that the BGT is not within 100 feet of any continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake as measured from the ordinary high water mark.

### LOCAL GEOLOGY AND HYDROLOGY

This particular site is located in the bottom of Little Pump Canyon, and is about 7000 feet west of Pump Canyon and 100 feet higher. Regional topography of Pump Canyon is composed of mesas dissected by deep, narrow canyons and arroyos. The more resistant cliff-forming sandstones of the San Jose Formation cap the interbedded siltstones, shales and sandstones of the Nacimiento Formation. Accumulations of talus and eroded sands at the base of canyon walls form steep to gentle slopes that transition into flat-bottomed arroyos within the canyons. Deposits of Quaternary alluvial and eolian sands occur prominently near the surface of Pump Canyon, especially near streams and washes.

Groundwater is estimated to be between 50 and 100 feet below ground surface (bgs) at this site. This is based on the elevation difference between the site (6061 feet) and Pump Canyon of 143 to 153 feet, and depth to groundwater in domestic well SJ 03841 POD 7 of 55 feet bgs, located 830 feet northwest of the site. Little Pump Canyon is 1015 feet from the site. The elevation difference between the site and Little Pump Canyon is 62 feet.

#### **REGIONAL GEOLOGY AND HYDROLOGY**

The San Juan Basin is situated in the Navajo section of the Colorado Plateau and is characterized by broad open valleys, mesas, buttes and hogbacks. Away from major valleys and canyons topographic relief is generally low. Native vegetation is sparse and shrubby. Drainage is mainly by the San Juan River, the only permanent stream in the Navajo Section of the Colorado Plateau. The San Juan River is a tributary of the Colorado River. Major tributaries include the Animas, Chaco and La Plata Rivers. Flow of the San Juan River across the basin is regulated by the Navajo Dam, located about 30 miles northeast of Farmington, New Mexico. The climate is arid to semiarid with an average annual precipitation of 8 to 10 inches. Soils within the basin consist of weathered parent rock derived from predominantly physical means mostly from eolian depositional system with fluvial having a lesser impact.

Cretaceous and Tertiary sandstones, as well as Quaternary Alluvial deposits, serve as the primary aquifers in the San Juan Basin (Stone et al., 1983). The San Jose Formation of Eocene age occurs in both New Mexico and Colorado, and its outcrop forms the land surface over much of the eastern half of the central basin. It overlies the Nacimiento Formation in the area generally south of the Colorado-New Mexico border and overlies the Animas Formation in the general area north of the State Line. The San Jose Formation was deposited in various fluvial-type environments. In general, the unit consists of an interbedded sequence of sandstone, siltstone, and shale. Thickness of the San Jose Formation increases from west to east. Groundwater is associated with alluvial and fluvial sandstone aquifers.

The occurrence of groundwater is mainly controlled by distribution of sandstone in the formation. The reported or measured discharge from numerous water wells completed in the formation range from 0.15 to 61 gallons per minute (gpm) and with a median of 5 gpm. Most of the wells provide water for livestock and domestic purposes. The formation is suitable for recharge from precipitation due to overlying soils beign sandy, highly permeable and absorbent. Low annual precipitation, relatively high transpiration and evaporation rates and deep dissection of the formation by the San Juan River and its main tributaries all tend to reduce the effective recharge to the formation. Aquifers within the coarser and continuous sandstone bodies of the Nacimiento Formation of Paleocene age are between 0 and 1000 feet deep in the majority of the basin as well (Stone et al., 1983).

## REFERENCES

Circular 154—Guidebook to coal geology of northwest New Mexico By E. C. Beaumont, J. W. Shomaker, W. J. Stone, and others, 1976

Stone, et al., 1983, Hydrogeology and Water Resources of the San Juan Basin, New Mexico, Socorro, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6, 70 p



## *New Mexico Office of the State Engineer* Wells with Well Log Information

No wells found.

UTMNAD83 Radius Search (in meters):

Easting (X): 253010.99

Northing (Y): 4082920.37

Radius: 60.96

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 Active & Inactive Points of Diversion

(with Ownership Information)

•			

POD Search:

;

POD Number: SJ 03841

UTMNAD83 Radius Search (in meters):

Easting (X): 253010.99

Northing (Y): 4082920.37

Radius: 60.96

No PODs found.

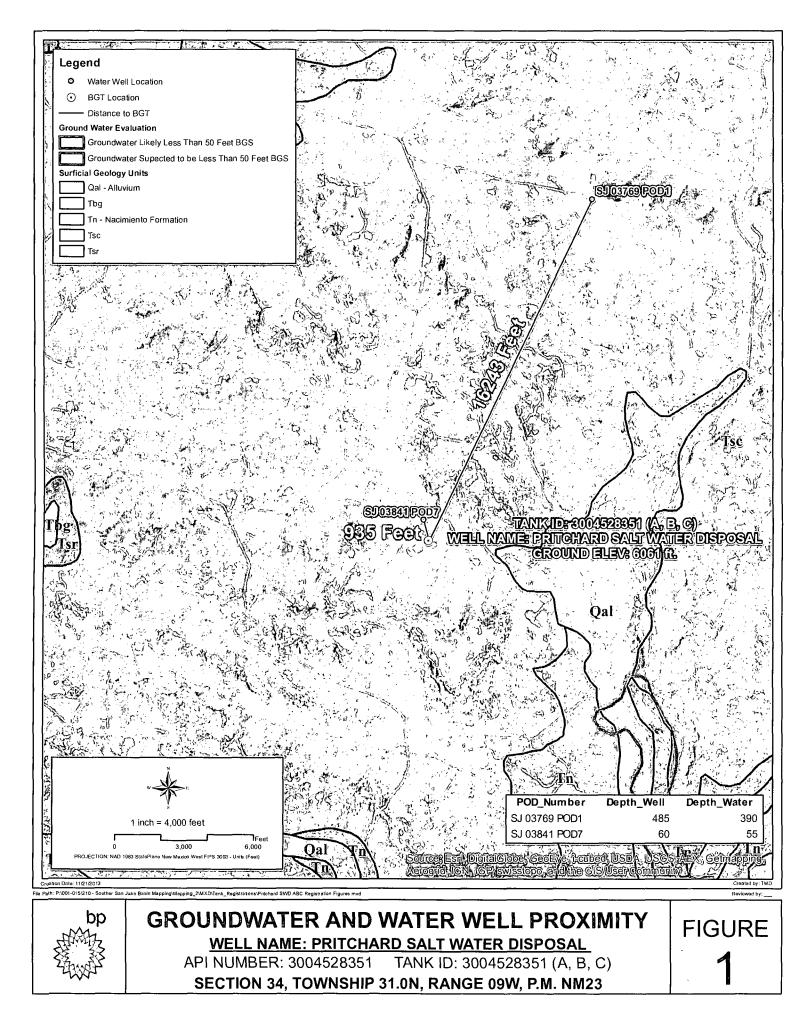
The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

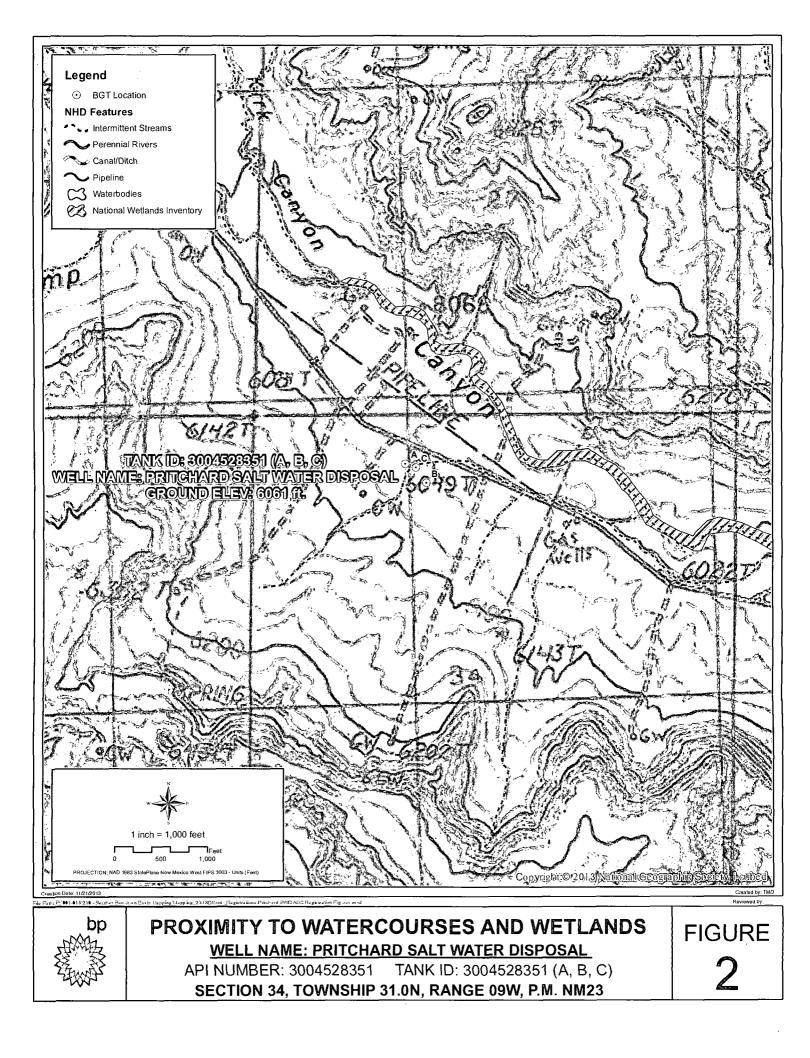


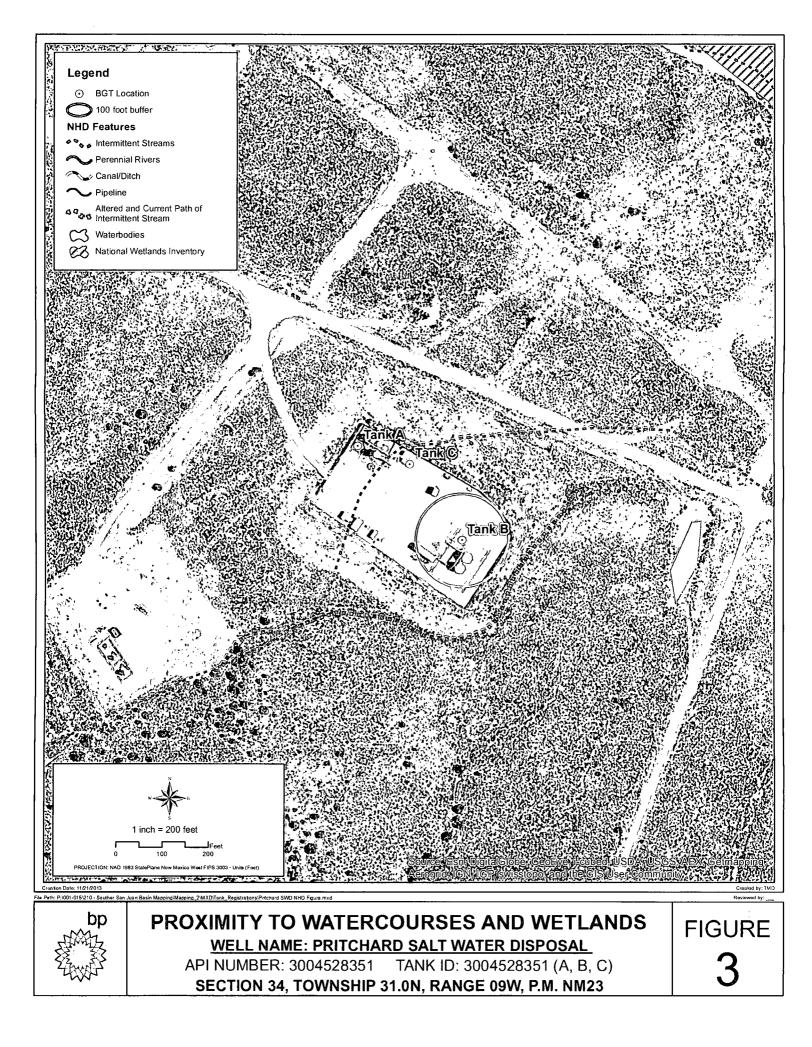
# New Mexico Office of the State Engineer Point of Diversion Summary

-	<b>OD Number</b> J 03841 POD7	(quarters are smalles (quarters are smalles Q64 Q16 Q4 Sec	•	(NAD83 UTM in meters) X Y 252890 4083245	,
Driller License:	NATIONAL EWP				
Driller Name:	CAIN, MATTHEV	V			
Drill Start Date:	08/15/2008	Drill Finish Date:	08/15/2008	Plug Date:	
Log File Date:	09/04/2008	PCW Rcv Date:	•	Source:	Shallow
Pump Type:		Pipe Discharge Size:		Estimated Yiel	d:
Casing Size:	2.00	Depth Well:	60 feet	Depth Water:	55 feet

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.







## BP AMERICA PRODUCTION COMPANY SAN JUAN BASIN, NORTHWEST NEW MEXICO BELOW-GRADE TANK DESIGN AND CONSTRUCTION PLAN

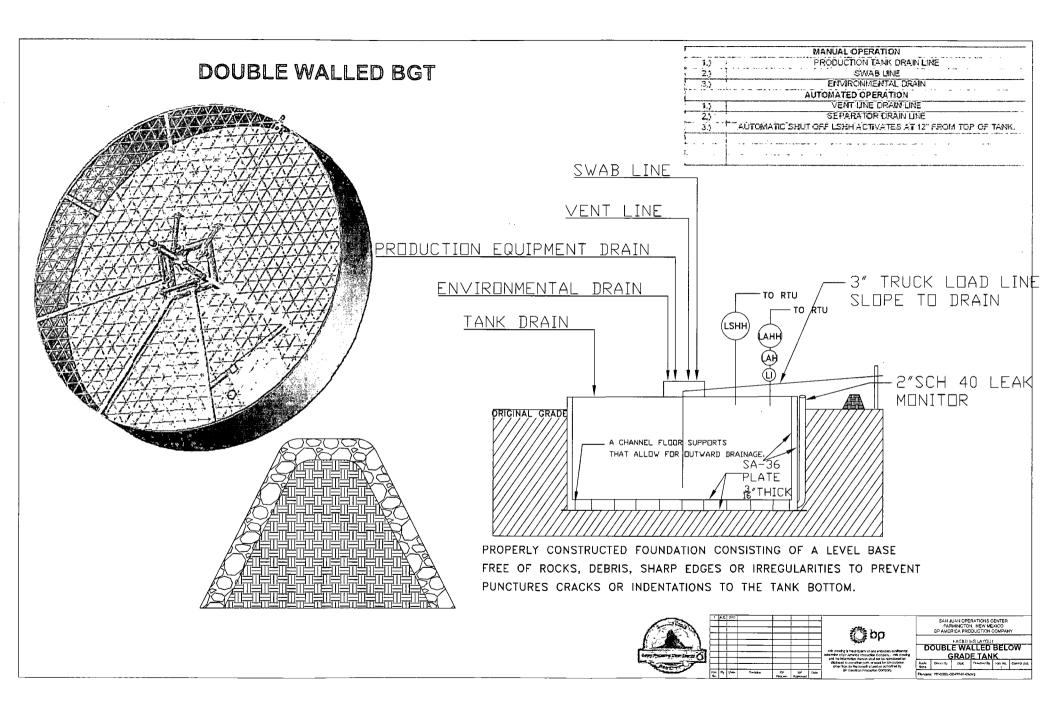
Pursuant to Rule 19.15.17.11 NMAC, BP America Production Company (BP) shall construct a below-grade tank (BGT) or modify an existing permitted BGT according to the following plan. Any deviations from this plan will be addressed on the New Mexico Oil Conservation Division's (NMCOD) form C-144 at the time of submittal.

## **Design and Construction Plan**

- 1. BP will design and construct a BGT which will be constructed to contain liquids and prevent contamination of fresh water and protect public health and the environment.
- 2. BP is the well operator and shall install and maintain a well sign that is in compliance with 19.15.16.8 NMAC. The sign will be posted at the well site to address, at a minimum;
  - a. Well Number
  - b. Property name
  - c. Operators name
  - d. Location by footage, quarter-quarter section, township and range (or unit letter)
  - e. API number
  - f. Emergency contact information
- 3. BP will fence or enclose its BGTs in a manner that prevents unauthorized access and shall maintain its fence in good repair.
- 4. BP will fence or enclose a BGT located within 1,000 feet of a permanent residence, school, hospital, institution or church with, at a minimum a chain link security fence at least six (6) feet in height with at least two (2) strands of barbed wire at the top. BP will ensure that all gates associated with the fence are closed and locked when responsible personnel are not on-site.
- 5. BP is requesting NMOCD's approval for an alternative fence design that provides, at a minimum, equivalent protection to the design specified in Paragraph 3 of Subsection D of 19.15.17.11 NMAC for BGTs beyond the stated distance in paragraph 4 of this document. BP's proposed design for its BGTs will utilize 48" steel mesh field-fence (hogwire) with a metal or steel top rail. Perimeter T-post will be installed roughly every 10 feet.
- 6. BP will construct an expanded metal covering that completely covers the top of the BGT. The covering will be constructed such that it will prevent hazardous conditions to wildlife, including migratory birds
- 7. BP shall construct the BGT of materials that are resistant to produced water, any contained liquids, and damage from sunlight. BP's BGTs will be constructed of carbon steel that meets the requirements of ASTM A36.
- 8. BP's BGTs shall have a properly constructed earthen foundation consisting of a level base free of rocks, debris, sharp edges, or irregularities as to prevent punctures, cracks or indentations to the tank bottom as demonstrated on the design drawing.
- 9. BP will construct and operate the BGT to prevent surface water run-on by using both earthen berms and leaving a portion of the BGT above the original grade as demonstrated on the design drawing.
- 10. BP will construct and operate the BGT to prevent overflow and overfilling of the BGT. Overflow will be prevented by use of an electronic high fluid level detector that will automatically engage an electronic shutoff valve when a 1 foot freeboard is reached. The Hi-level automatic alarm notifies well optimizers when liquid level has reached within a pre-set distance to the top of the BGT. The Hi Hi alarm will trigger the Hi-level automatic shutdown valve which will close in the well until the liquid level can be lowered.

- 11. BP will construct and install a double-walled tank design per Subparagraph (b) of Paragraph (4) of Subsection I of19.15.17.11 NMAC with a two (2) inch diameter leak detection port. The floor supports located in the annular space of the tank bottom will be channeled to allow outward movement of liquid between the walls. Leak detection will be monitored per BP's Operating and Maintenance Plan. The walls of the BGT will be constructed of carbon steel that meets the ASTM A36 standard. BP's BGT design will insure containment of tank contents and protect underlying groundwater. The production equipment line drain is an automated drain that allows water level in production equipment (generally the separator) to be maintained within the equipment's operating parameters. The environmental drain is a manually operated drain, typically in the closed position that is used to rid the condensate tank of any water accumulation. The vent drain is a manually operated drain off the discharge of production equipment (usually the separator) and is used to blowdown the wellsite. The swab drain line is a manually operated drain originating between the wellhead and separator and is used during well workovers when large amounts of liquid are removed from the well and sent straight to the BGT.
- 12. BP owned and operated single walled BGTs constructed and installed prior to June 16, 2008 that has the side walls open for visual inspection and that does not meet all the requirements in Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC is not required to equip or retrofit the BGT to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC so long as it demonstrates integrity. If the existing BGT does not demonstrate integrity, the operator shall promptly drain the BGT and remove it from service and comply with the closure requirements of 19.15.17.13 NMAC.
- 13. BP owned and operated single walled BGTs constructed and installed prior to June 16, 2008 and where any portion of the tank sidewall is below the ground surface and not visible shall equip or retrofit the BGT to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, or close it, by June 16, 2013. If the existing BGT does not demonstrate integrity, the operator shall promptly drain the BGT, remove it from service and comply with the closure requirements of 19.15.17.13 NMAC.
- 14. BP owned and operated double walled BGTs constructed and installed prior to June 16, 2008 and which does not meet all the requirements in Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC is not required to equip or retrofit the BGT to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC so long as it demonstrates integrity. If the existing BGT does not demonstrate integrity, the operator shall promptly drain the BGT, remove it from service and comply with the closure requirements of 19.15.17.13 NMAC.
- 15. The general specifications for the design and construction of the BGT have been provided in the attached BP design and construction schematic.

BP Design Construction Plan-BGT 09202013



## BP AMERICA PRODUCTION COMPANY SAN JUAN BASIN, NORTHWEST NEW MEXICO BELOW-GRADE TANK OPERATING AND MAINTENANCE PLAN

Pursuant to Rule 19.15.17.12 NMAC, BP America Production Company (BP) shall maintain and operate a below-grade tank (BGT) by following the plan shown below. Deviations from this plan will be addressed with a submittal to the New Mexico Oil Conservation Division (NMOCD) using form C-144 at the time of the BGT registration or modification to an existing BGT registration.

### **Operating and Maintenance Plan**

- 1. BP's BGTs will be operated to contain liquids and solids. BP will maintain the integrity of the BGT and secondary containment system as to prevent impacts to fresh water and to protect public health and the environment. BP will use automated high fluid level alarms and automated shut-off valves to insure that liquids are contained within the vessel and that the vessel does not overflow. These alarms and shut-off valves will be consistent with those demonstrated in the design plan.
- 2. BP will not knowingly discharge to or store any hazardous waste in a BGT.
- 3. If a BGT develops a leak below the liquid surface, BP shall remove all liquid above the damage or leak within 48 hours of discovery, notify the appropriate division office pursuant to 19.15.29 NMAC and repair the damage or replace the BGT as applicable.
- 4. BP will adhere to Subsection D of 19.15.17.12 NMAC. The requirements are as follows;
  - a. BP shall not allow a below-grade tank to overflow or allow surface water run-on to enter the BGT.
  - b. BP shall remove any measurable layer of oil from the fluid surface of a BGT.
  - c. BP shall inspect the BGT for leakage and damage at least monthly and will document the integrity of each tank at least annually and maintain a written record of the integrity for five years.
  - d. BP shall maintain adequate freeboard to prevent overtopping of the below-grade tank.
  - e. If BP discovers that the BGT tank does not demonstrate integrity or that the BGT develops any of the conditions identified in Paragraph (5) of Subsection A of 19.15.17.12 NMAC, BP shall repair the damage or close the existing BGT pursuant to the closure requirements of 19.15.17.13 NMAC.
  - f. If any of BP's BGTs are equipped or retrofitted to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, then BP shall visually inspect the area beneath the BGT during the retrofit and document any areas that are wet, discolored or showing other evidence of a release on form C-141. BP will attempt to measure and report to the division the concentration of contaminants in the wet or discolored soil with respect to the standards set forth in Table I of 19.15.17.13 NMAC. If there is no wet or discolored soil or if the concentration of contaminants in the wet or discolored soil is less than the standard set forth in Table I of 19.15.17.13 NMAC, then BP shall proceed with the closure requirements of 19.15.17.13 NMAC prior to initiating the retrofit or replacement.

Managed Date:	Form NOP-5878   Run:	Revision 1	San Juan Lease Inspection         Custodian: Field Environmental Coordinator           Location:         Name of Inspector:
Yes	Action	N/A	Required Signs
100	, 1011011	10//	Does location have Well Sign and emergency phone number?
			Do compressor engines have Hearing Protection signs?
			Hydrogen Sulfide Signs (where applicable)
			Chemical containers and tanks have proper Hazcom label or BP Multi-Product Hazcom numbers?
Yes	Action	 N/A	Location- General
103	Auton	11/71	Housekeeping satisfactory?
			Tripping or falling hazards are absent? If NO, identify and report to FSC.
	·		Rig anchors/Deadmen adequately marked and visible if they present a hazard to drivers?
			Driving hazards such as risers are marked or flagged?
			Painting meets safety standards?
	<u></u>		Cattleguards/gates properly maintained?
			Tarps in good repair?
,			Seeps, drips, or leaks are absent?
		<del> </del>	Is weed control adequate?
			Stains on ground are absent? If NO, remediate immediately, identify and report to FEC.
N/ a a	A _ ti = m		Are there any open ended valves that are not plugged?
Yes	Action	N/A	Vessel/Tank
·			Adequate fencing around below grade tank?
			Are the dike/berm walkover in place, used and stable?
			Are dikes/berms in good condition?
			Is there adequate and safe access to pit for gauging?
			Does the pit have a high level alarm?
			Are stairways and catwalks properly maintained and in good condition?
	<u></u>		Toprail, midrail and toeboard in place?
			Are thief hatches in good condition, seal properly, and in the closed position?
			Is tank vent line equipped with a PV valve? (Enardo)
		<u> </u>	Does the tank have a high level alarm?
			Are open ended load lines and pipes capped?
			Is soil around load lines clean of oil stains?
			Is tank area free of any evidence of seeps or leaks (including manway cover)?
			Are there proper seals on sales and drain valves?
	<u></u>		Are all suspected dump lines well supported?
	. <u> </u>		Are above ground dump lines marked with t-posts and plastic covers?
			Have all fiberglass drip pits been removed?
Yes	Action	<u>N/A</u>	Treaters/Separators/Compressors/Pump Jacks
			If there is a block valve upstream of the relief valve, is the block valve secured in the open position?
	·		Are relief valve discharge and blow downs piped to a safe area and secured against movement?
			Has flame arrestor been inspected within the last 5 years?
			Is flame port closed?
			Do all lines pass through a super muffler or swirl pot to the pit/tank? If not, are all lines secured?
			Is starting gas vented to a safe area, at least 10' vertically?
			No excessive vibration, knocking or unusual noises anywhere on unit or piping?
			Are site glasses in operating condition?
			Are environmental rails piped to a pit in a dedicated line?
			Do all blow downs, relief valve discharges, and risers have rain caps?
			Stuffing box leaks are absent?
			Are the weight guards and belt guard in place?
			Are skids in good condition?
			Are concrete bases / foundations in good condition?
		<u> </u>	Are concrete bases free from erosion or settlement problems?
			Is secondary containment in place for day tanks?
Common	ts:		to occorrectly containment in place for day tarks :

## Signature of Inspector:

My signature assures that this location is SAFE, is in compliance with the LAW, and exhibits high standards of Pride, Ownership and Excellence.

## BPAMERICA PRODUCTION COMPANY SAN JUAN BASIN, NORTHWEST NEW MEXICO

#### BELOW-GRADE TANK CLOSURE PLAN

This plan will address the method, procedures, and protocols for closure of below-grade tanl s (BGTs) on BP America Production Company (BP) well sites pursuant to Subsection A of 19.15.17.13 NMAC. As stipulated in Paragraph (1) of Subsection C of 19.15.17.13 NMAC, BP will not commence closure without first obtaining approval of the closure plan submitted pursuant to Paragraph (3) of Subsection B of 19.15.17.9 NMAC. If deviations from this plan are necessary, BP will request preapproval from the Division District III office of any specific changes and will be included on form C-144. BP shall close its BGTs within 60 days of cessation of the operation as required by Paragraph (4) of Subsection G of 19.15.17.13 NMAC.

#### **General Closure Plan**

- 1. BP shall notify the surface owner by certified mail; return receipt requested that it plans to close a BGT. Notice given will be at least 72 hours in advanced, but not more than one weel prior to any closure operation. The notice shall include the well name, API number, and legal description of the location. Evidence of mailing of the notice to the address of the surface owner shown in the county tax records demonstrates compliance with this requirement.
- 2. BP shall notify the Division District III office verbally and in writing at least 72 hours, but not more than one weel, prior to any closure operation. The notice shall include the Operator's name, and the location of the BGT to be closed by unit letter, section, township and range. If the BGT closure is associated with a particular well, then the notice shall also include the well's name, number and API number.
- 3. BP shall remove liquids and sludge from the BGT prior to implementing a closure method and dispose of the liquids and sludge in a NMOCD approved facility. The facilities to be used are:
  - a. BP Crouch Mesa Landfarm, Permit NM-02-003 (Solids)
  - b. JFJ Landfarm, Permit NM-01-010(B) (Solids and Sludge)
  - c. Basin Disposal, Permit NM-01-0005 (Liquids)
  - d. Envirotech Inc Soil Remediation Facility, Permit NM-01-0011 (Solids and Sludge)
  - e. BP Operated E.E. Elliott SWD #1, API 30-045-27799 (Liquids)
  - f. BP Operated 13 GCU SWD #1, API 30-045-28601 (Liquids)
  - g. BP Operated GCU 259 SWD, API 30-045-20006 (Liquids)
  - h. BP Operated GCU 306 SWD, API 30-045-24286 (Liquids)
  - i. BP Operated GCU 307 SWD, API 30-045-24248 (Liquids)
  - j. BP Operated GCU 328 SWD, API 30-045-24735 (Liquids)
  - x. BP Operated Pritchard SWD #1, API 30-045-28351 (Liquids)
- 4. BP shall remove the BGT and dispose of it in a NMOCD approved facility or recycle, reuse, or reclaim it in a manner that the Division District III office approves. Documentation as to the final disposition of the removed BGT will be provided in the final closure report.
- 5. BP shall remove any on-site equipment associated with a BGT unless the equipment is required for some other purpose.
- 6. BP shall test the soils beneath the BGT to determine whether a release has occurred. BP shall collect at a minimum: a five (5) point composite sample to include any obvious stained or wet soils, or other evidence of a release under the BGT. The composite sample shall be collected and analyzed as required for the constituents listed in Table I within Subparagraph (a) of Paragraph (3) of Subsection C of 19.15.17.13 NMAC (see Table 1 on following page).

	Ta	ble 1				
Closure Criteria for Soils Beneath Below-Grade Tanks						
Depth below bottom of pit to groundwater less than 10,000 mg/l TDS	Constituent	Method*	Limit**			
	Chloride	EPA 300.0	600 mg/kg			
≤50 feet	ТРН	EPA SW-846 Method 418.1	100 mg/kg			
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg			
	Benzene	EPA SW-846 Method 8021B or 8015M	10 mg/kg			
	Chloride	EPA 300.0	10,000 mg/kg			
	ТРН	EPA SW-846 Method 418.1	2,500 mg/kg			
51 feet-100 feet	GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg			
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg			
	Benzene	EPA SW-846 Method 8021B or 8015M	10 mg/kg			
	Chloride	EPA 300.0	20,000 mg/kg			
	ТРН	EPA SW-846 Method 418.1	2,500 mg/kg			
> 100 feet	GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg			
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg			
	Benzene	EPA SW-846 Method 8021B or 8015M	10 mg/kg			

Notes: mg/Kg = milligram per kilogram, BTEX = benzene, toluene, ethylbenzene, and total xylenes, TPH

= total petroleum hydrocarbons, TDS = total dissolved solids.

\* - Or other test methods approved by the division

\*\* - Numerical limits or natural background level, whichever is greater

- 7. If any contaminant concentration exceeds those standards set in Table I, BP will acknowledge NMOCD's position to require additional delineation upon review of the results. BP will not proceed with any further closure activities until approval is first granted by NMOCD.
- 8. If the sampling demonstrates that all contaminant constituents do not exceed the concentrations specified in Table I, then BP shall backfill the excavation, with non-waste containing, uncontaminated, earthen material.
- 9. If it is determined that a release has occurred, then BP will comply with 19.15.30 NMAC and 19.15.29 NMAC, as appropriate.
- 10. BP shall reclaim the BGT location and all areas associated with the BGT including associated access roads to a safe and stable condition that blends with the surrounding undisturbed area. BP shall substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Paragraph (2) of Subsection H of 19.15.17.13 NMAC, re-contour the BGT location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Paragraph (5) of Subsection H of 19.15.17.13 NMAC.
- 11. BP may propose an alternative to the re-vegetation or recontouring requirement if it can demonstrate to the NMOCD's District III office that the proposed alternative provides equal or greater prevention of erosion, and protection of fresh water, public health and the environment. BP will seek surface owner approval of the proposed alternative and provide written documentation of the surface owner's approval to NMOCD for its approval.
- 12. Areas reasonably needed for production operations or for subsequent drilling operations shall be compacted, covered, paved, or otherwise stabilized and maintained in such a way as to minimize dust and erosion to the extent practicable.

- 13. The soil cover for closures after site contouring, where the BGT has been removed and if necessary remediated beneath the BGT to chloride concentrations less than 600 mg/kg as analyzed by EPA Method 300.0, shall consist of the background thickness of topsoil or one foot or suitable material, whichever is greater.
- 14. The soil cover will be constructed to the site's existing grade and all practicable efforts will be made to prevent ponding of water and erosion of the cover material.
- 15. All areas disturbed by the closure of the BGT, except areas reasonably needed for production operations or for subsequent drilling operations, shall be reclaimed as early and as nearly as practicable to their original condition or their final land use and shall be maintained to control dust and minimize erosion to the extent practicable.
- 16. Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns. The disturbed area then shall be reseeded in the first favorable growing season following closure of the BGT.
- 17. Reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70) of pre-disturbance levels, excluding noxious weeds.
- 18. The re-vegetation and reclamation obligations imposed by other applicable federal or tribal agencies on lands managed by those agencies shall supersede these provisions and govern the obligations of BP subject to those provisions, provided that the other requirements provide equal or better protection of fresh water, human health and the environment.
- 19. Pursuant to Subparagraph (e) of Paragraph (5) of Subsection H of 19.15.17.13 NMAC, BP shall notify the NMOCD when reclamation and re-vegetation has been successfully achieved.
- 20. Within 60 days of closure completion, BP shall submit a closure report on NMOCD's form C-144, and will include the following;
  - a. necessary attachments to document all closure activities
  - b. sampling results
  - c. information required by 19.15.17 NMAC
  - d. details on back-filling, capping and covering, where applicable.
- 21. BP shall certify that all information in the report and attachments is accurate, truthful, and compliant with all applicable closure requirements and conditions specified in the approved closure plan.