

**HOBBS OCD**

FORM APPROVED  
OMB No. 1004-0137  
Expires: January 31, 2018

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
**APPLICATION FOR PERMIT TO DRILL OR REENTER**

MAY 13 2019

**RECEIVED**

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM097153
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		6. If Indian, Allottee or Tribe Name
1c. Type of Completion: <input type="checkbox"/> Hydraulic Fracturing <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.
2. Name of Operator BTA OIL PRODUCERS LLC (260297)		8. Lease Name and Well No. VACA DRAW 9418 10 FED 13H (317432)
3a. Address 104 S. Pecos Midland TX 79701	3b. Phone No. (include area code) (432)682-3753	9. API-Well No. 30-04-45932
14. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface SWSW / 220 FSL / 1305 FWL / LAT 32.138416 / LONG -103.564564 At proposed prod. zone NWNW / 50 FNL / 990 FWL / LAT 32.152198 / LONG -103.565564		10. Field and Pool, or Exploratory BEGAT-DRAW / UPPER WOLF CAMP 98180
11. Sec., T. R. M. or Blk. and Survey or Area SEC 10 / T25S / R33E / NMP		
14. Distance in miles and direction from nearest town or post office* 21 miles	12. County or Parish LEA	13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 50 feet	16. No of acres in lease 640	17. Spacing Unit dedicated to this well 160
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 30 feet	19. Proposed Depth 12474 feet / 17452 feet	20. BLM/BIA Bond No. in file FED: NM1195
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3389 feet	22. Approximate date work will start* 09/03/2018	23. Estimated duration 45 days
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- |  |   |
|--|---|
| 1. Well plat certified by a registered surveyor.   | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.  | 5. Operator certification.  |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be requested by the BLM.            |

25. Signature (Electronic Submission)	Name (Printed/Typed) Sammy Hajar / Ph: (432)682-3753	Date 04/23/2018
Title Regulatory Analyst		
Approved by (Signature) (Electronic Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-5959	Date 05/09/2019
Title Assistant Field Manager Lands & Minerals Office CARLSBAD		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

GCP Rec 05/10/19

**APPROVED WITH CONDITIONS**  
Approval Date: 05/09/2019

KZ  
05/13/19

## INSTRUCTIONS

**GENERAL:** This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

**ITEM 1:** If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

**ITEM 4:** Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

**ITEM 14:** Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

**ITEMS 15 AND 18:** If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

**ITEM 22:** Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

**ITEM 24:** If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

## NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

**AUTHORITY:** 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

**PRINCIPAL PURPOSES:** The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

**ROUTINE USE:** Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

**EFFECT OF NOT PROVIDING INFORMATION:** Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to an evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

**BURDEN HOURS STATEMENT:** Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

### **Additional Operator Remarks**

#### **Location of Well**

1. SHL: SWSW / 220 FSL / 1305 FWL / TWSP: 25S / RANGE: 33E / SECTION: 10 / LAT: 32.138416 / LONG: -103.564564 ( TVD: 0 feet, MD: 0 feet )  
PPP: SWSW / 330 FSL / 990 FWL / TWSP: 25S / RANGE: 33E / SECTION: 10 / LAT: 32.138721 / LONG: -103.565581 ( TVD: 12474 feet, MD: 12800 feet )  
BHL: NWNW / 50 FNL / 990 FWL / TWSP: 25S / RANGE: 33E / SECTION: 10 / LAT: 32.152198 / LONG: -103.565564 ( TVD: 12474 feet, MD: 17452 feet )

#### **BLM Point of Contact**

Name: Tenille Ortiz  
Title: Legal Instruments Examiner  
Phone: 5752342224  
Email: tortiz@blm.gov

CONFIDENTIAL

### **Review and Appeal Rights**

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

CONFIDENTIAL

## PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

<b>OPERATOR'S NAME:</b>	<b>BTA OIL PRODUCERS LLC</b>
<b>LEASE NO.:</b>	<b>NMNM097153</b>
<b>WELL NAME &amp; NO.:</b>	<b>13H – VACA DRAW 9418 10 FED</b>
<b>SURFACE HOLE FOOTAGE:</b>	<b>220'/S &amp; 1305'/W</b>
<b>BOTTOM HOLE FOOTAGE:</b>	<b>50'/N &amp; 990'/W</b>
<b>LOCATION:</b>	<b>SECTION 10, T25S, R33E, NMPM</b>
<b>COUNTY:</b>	<b>LEA</b>

COA

H2S	<input checked="" type="radio"/> Yes	<input type="radio"/> No	
Potash	<input checked="" type="radio"/> None	<input type="radio"/> Secretary	<input type="radio"/> R-111-P
Cave/Karst Potential	<input checked="" type="radio"/> Low	<input type="radio"/> Medium	<input type="radio"/> High
Variance	<input type="radio"/> None	<input checked="" type="radio"/> Flex Hose	<input type="radio"/> Other
Wellhead	<input type="radio"/> Conventional	<input type="radio"/> Multibowl	<input checked="" type="radio"/> Both
Other	<input type="checkbox"/> 4 String Area	<input type="checkbox"/> Capitan Reef	<input type="checkbox"/> WIPP
Other	<input checked="" type="checkbox"/> Fluid Filled	<input type="checkbox"/> Cement Squeeze	<input type="checkbox"/> Pilot Hole
Special Requirements	<input type="checkbox"/> Water Disposal	<input type="checkbox"/> COM	<input type="checkbox"/> Unit

### A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the Wildcat Pool formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

### B. CASING

1. The 13-3/8 inch surface casing shall be set at approximately **1200 feet** (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to

- include the lead cement)
- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.**

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing shall be set at approximately 5000 feet is:

**Option 1 (Single Stage):**

- Cement to surface. If cement does not circulate see B.1.a, c-d above.

**Option 2:**

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

- a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.
  - b. Second stage above DV tool:
    - Cement to surface. If cement does not circulate, contact the appropriate BLM office.
3. The minimum required fill of cement behind the 7 inch production casing is:
    - Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
  4. The minimum required fill of cement behind the 4-1/2 inch production liner is:
    - Cement should tie-back 100 feet into the previous casing. Operator shall provide method of verification.  
**Cement excess is less than 25%, more cement might be required.**

### C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
- 2.

#### Option 1:

- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi**.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**

#### Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M) psi**. **Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
  - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

## GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Chaves and Roosevelt Counties  
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.  
During office hours call (575) 627-0272.  
After office hours call (575)

☒ Eddy County  
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,  
(575) 361-2822

☒ Lea County  
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)  
393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
  - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
  - b. When the operator proposes to set surface casing with Spudder Rig
    - Notify the BLM when moving in and removing the Spudder Rig.
    - Notify the BLM when moving in the 2<sup>nd</sup> Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
    - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.



3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

**B. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
  - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
  - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
  - c. Manufacturer representative shall install the test plug for the initial BOP test.
  - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
  - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the

plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.
- c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- e. The results of the test shall be reported to the appropriate BLM office.
- f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

#### **D. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**PECOS DISTRICT  
SURFACE USE  
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	BTA OIL PRODUCERS LLC
LEASE NO.:	
WELL NAME & NO.:	13H – VACA DRAW 9418 10 FED
SURFACE HOLE FOOTAGE:	220'/S & 1305'/W
BOTTOM HOLE FOOTAGE:	50'/N & 990'/W
LOCATION:	SECTION 10, T25S, R33E, NMPM
COUNTY:	LEA

**TABLE OF CONTENTS**

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Lesser Prairie-Chicken Timing Stipulations
  - Ground-level Abandoned Well Marker
  - Hydrology
- ☐ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☐ **Road Section Diagram**
- ☐ **Production (Post Drilling)**
  - Well Structures & Facilities
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

## V. SPECIAL REQUIREMENT(S)

### **Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:**

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

**Ground-level Abandoned Well Marker to avoid raptor perching:** Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

### **Timing Limitation Exceptions:**

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

### **Hydrology**

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.



## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

### **C. CLOSED LOOP SYSTEM**

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

### **D. FEDERAL MINERAL MATERIALS PIT**

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

### **F. EXCLOSURE FENCING (CELLARS & PITS)**

**Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

**G. ON LEASE ACCESS ROADS****Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

**Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

**Crowning**

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

**Ditching**

Ditching shall be required on both sides of the road.

**Turnouts**

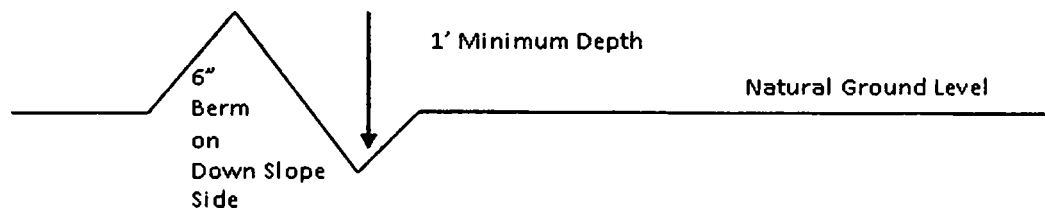
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

#### **Cross Section of a Typical Lead-off Ditch**



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

#### **Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

#### **Cattle guards**

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

#### **Fence Requirement**

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

#### **Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

### Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

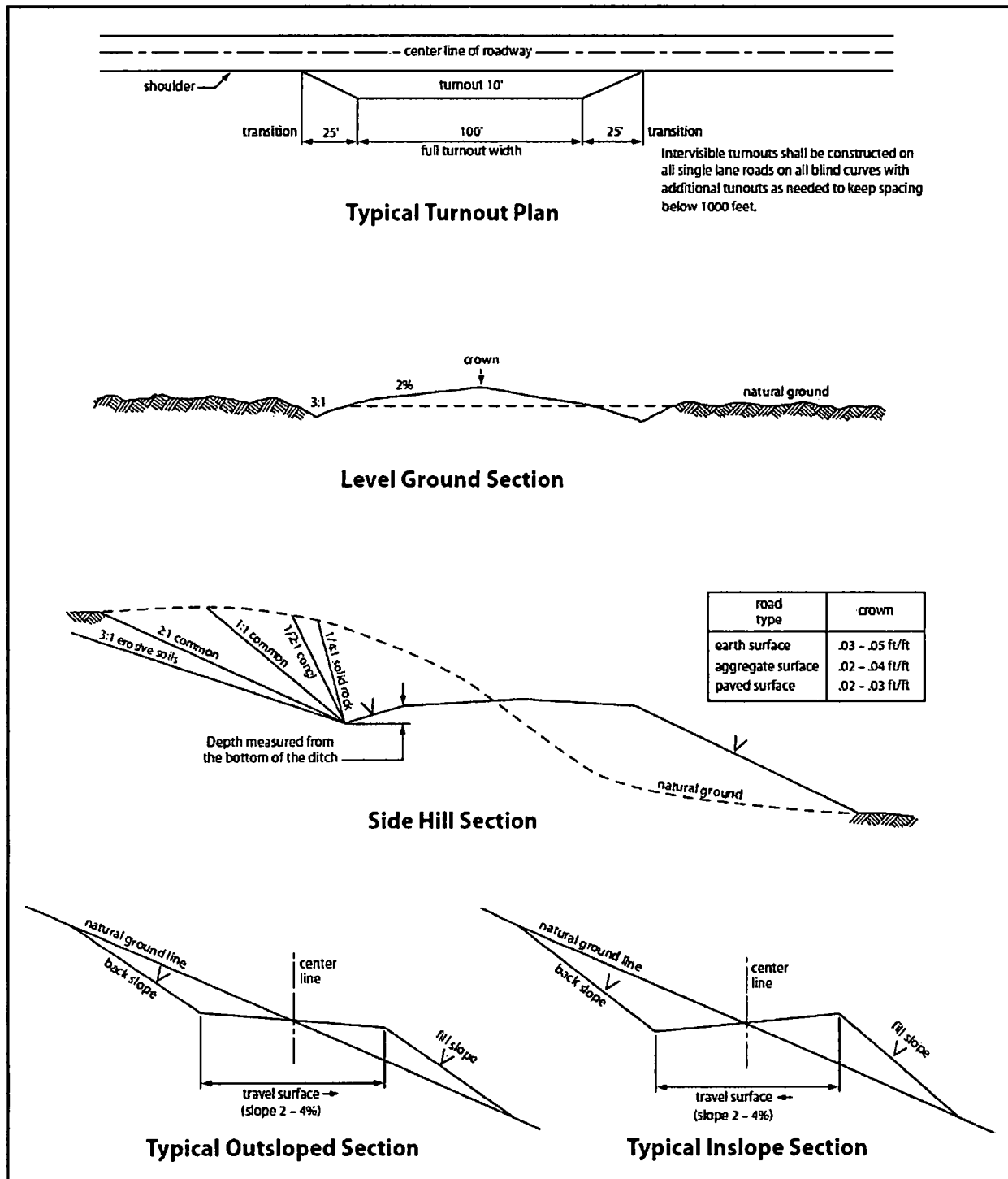


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

## **VII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Exclosure Netting (Open-top Tanks)**

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

#### **Chemical and Fuel Secondary Containment and Exclosure Screening**

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

#### **Open-Vent Exhaust Stack Exclosures**

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

#### **Containment Structures**

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

**Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

## **VIII. INTERIM RECLAMATION**

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

## **IX. FINAL ABANDONMENT & RECLAMATION**

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

### Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed





U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Operator Certification Data Report

05/09/2019

### Operator Certification

*I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.*

**NAME:** Sammy Hajar

**Signed on:** 04/23/2018

**Title:** Regulatory Analyst

**Street Address:** 104 S Pecos Street

**City:** Midland

**State:** TX

**Zip:** 79701

**Phone:** (432)682-3753

**Email address:** SHajar@btaoil.com

### Field Representative

**Representative Name:** Nick Eaton

**Street Address:** 104 South Pecos

**City:** Midland

**State:** TX

**Zip:** 79701

**Phone:** (432)682-3753

**Email address:** neaton@btaoil.com



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Application Data Report

05/09/2019

APD ID: 10400029708

Submission Date: 04/23/2018

Highlighted data  
reflects the most  
recent changes

Operator Name: BTA OIL PRODUCERS LLC

Well Name: VACA DRAW 9418 10 FED

Well Number: 13H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

### Section 1 - General

APD ID: 10400029708

Tie to previous NOS? 10400013969

Submission Date: 04/23/2018

BLM Office: CARLSBAD

User: Sammy Hajar

Title: Regulatory Analyst

Federal/Indian APD: FED

Is the first lease penetrated for production Federal or Indian? FED

Lease number: NMNM097153

Lease Acres: 640

Surface access agreement in place?

Allotted?

Reservation:

Agreement in place? NO

Federal or Indian agreement:

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO

APD Operator: BTA OIL PRODUCERS LLC

Operator letter of designation:

### Operator Info

Operator Organization Name: BTA OIL PRODUCERS LLC

Operator Address: 104 S. Pecos

Zip: 79701

Operator PO Box:

Operator City: Midland

State: TX

Operator Phone: (432)682-3753

Operator Internet Address:

### Section 2 - Well Information

Well in Master Development Plan? NO

Master Development Plan name:

Well in Master SUPO? NO

Master SUPO name:

Well in Master Drilling Plan? NO

Master Drilling Plan name:

Well Name: VACA DRAW 9418 10 FED

Well Number: 13H

Well API Number:

Field/Pool or Exploratory? Field and Pool

Field Name: BOBCAT DRAW

Pool Name: UPPER  
WOLFCAMP

Is the proposed well in an area containing other mineral resources? NATURAL GAS,OIL

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

**Describe other minerals:**

**Is the proposed well in a Helium production area?** N **Use Existing Well Pad?** YES **New surface disturbance?** Y

**Type of Well Pad:** MULTIPLE WELL

**Multiple Well Pad Name:** VACA **Number:** 12H-15H

**Well Class:** HORIZONTAL

**DRAW 9418 10 FED**

**Number of Legs:**

**Well Work Type:** Drill

**Well Type:** OIL WELL

**Describe Well Type:**

**Well sub-Type:** EXPLORATORY (WILDCAT)

**Describe sub-type:**

**Distance to town:** 21 Miles

**Distance to nearest well:** 30 FT

**Distance to lease line:** 50 FT

**Reservoir well spacing assigned acres Measurement:** 160 Acres

**Well plat:** Vaca\_Draw\_9418\_10\_Fed\_13H\_C102\_20180423090341.pdf

**Well work start Date:** 09/03/2018

**Duration:** 45 DAYS

### Section 3 - Well Location Table

**Survey Type:** RECTANGULAR

**Describe Survey Type:**

**Datum:** NAD83

**Vertical Datum:** NGVD29

**Survey number:**

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
SHL Leg #1	220	FSL	130 5	FWL	25S	33E	10	Aliquot SWS W	32.13841 6	- 103.5645 64	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 097153	338 9	0	0
KOP Leg #1	220	FSL	130 5	FWL	25S	33E	10	Aliquot SWS W	32.13841 6	- 103.5645 64	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 097153	- 292 4	631 3	631 3
PPP Leg #1	330	FSL	990	FWL	25S	33E	10	Aliquot SWS W	32.13872 1	- 103.5655 81	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 097153	- 908 5	128 00	124 74

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD
EXIT Leg #1	330	FNL	990	FWL	25S	33E	10	Aliquot NWN W	32.15142 8	- 103.5655 65	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 097153	- 908 4	172 19	124 73
BHL Leg #1	50	FNL	990	FWL	25S	33E	10	Aliquot NWN W	32.15219 8	- 103.5655 64	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 097153	- 908 5	174 52	124 74

# **BTA Oil Producers, LLC**

Lea County, NM (NAD 83)

Vaca Draw Sec 10, T25S, R33E

Vaca Draw #13H

Wellbore #1

Plan: Design #1

## **Standard Planning Report - Geographic**

05 March, 2018

# BTA

## Planning Report - Geographic

Database: EDM 5000.1 Single User Db	Local Co-ordinate Reference: Well Vaca Draw #13H
Company: BTA Oil Producers, LLC	TVD Reference: GL @ 3389.0usft
Project: Lea County, NM (NAD 83)	MD Reference: GL @ 3389.0usft
Site: Vaca Draw Sec 10, T25S, R33E	North Reference: Grid
Well: Vaca Draw #13H	Survey Calculation Method: Minimum Curvature
Wellbore: Wellbore #1	
Design: Design #1	

Project	Lea County, NM (NAD 83), Lea County, NM		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		Using geodetic scale factor

Site	Vaca Draw Sec 10, T25S, R33E		
Site Position:	Northing:	419,812.34 usft	Latitude: 32° 9' 6.483 N
From: Map	Easting:	779,596.21 usft	Longitude: 103° 33' 48.478 W
Position Uncertainty:	0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.41 °

Well	Vaca Draw #13H		
Well Position	+N/-S	0.0 usft	Northing: 414,940.80 usft
	+E/-W	0.0 usft	Easting: 779,291.40 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
			Ground Level: 3,389.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF200510	12/31/2009	7.74
			Dip Angle (°)
			60.16
			Field Strength (nT)
			48,742

Design	Design #1		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			356.06

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,313.9	0.00	0.00	6,313.9	0.0	0.0	0.00	0.00	0.00	0.00	
6,513.9	4.00	237.59	6,513.8	-3.7	-5.9	2.00	2.00	0.00	237.59	
11,662.9	4.00	237.59	11,650.2	-196.3	-309.1	0.00	0.00	0.00	0.00	
11,862.9	0.00	0.00	11,850.0	-200.0	-315.0	2.00	-2.00	0.00	180.00	
11,913.9	0.00	0.00	11,901.0	-200.0	-315.0	0.00	0.00	0.00	0.00	
12,813.9	90.00	359.67	12,474.0	372.9	-318.3	10.00	10.00	0.00	359.67	
17,452.6	90.00	359.67	12,474.0	5,011.5	-345.4	0.00	0.00	0.00	0.00	Vaca #13H BHL

**BTA**  
Planning Report - Geographic

**Database:** EDM 5000.1 Single User Db  
**Company:** BTA Oil Producers, LLC  
**Project:** Lea County, NM (NAD 83)  
**Site:** Vaca Draw Sec 10, T25S, R33E  
**Well:** Vaca Draw #13H  
**Wellbore:** Wellbore #1  
**Design:** Design #1

**Local Co-ordinate Reference:** Well Vaca Draw #13H  
**TVD Reference:** GL @ 3389.0usft  
**MD Reference:** GL @ 3389.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

**Planned Survey**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
100.0	0.00	0.00	100.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
200.0	0.00	0.00	200.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
300.0	0.00	0.00	300.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
400.0	0.00	0.00	400.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
500.0	0.00	0.00	500.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
600.0	0.00	0.00	600.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
700.0	0.00	0.00	700.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
800.0	0.00	0.00	800.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
900.0	0.00	0.00	900.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,100.0	0.00	0.00	2,100.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,200.0	0.00	0.00	2,200.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,300.0	0.00	0.00	2,300.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,400.0	0.00	0.00	2,400.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,500.0	0.00	0.00	2,500.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,600.0	0.00	0.00	2,600.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,700.0	0.00	0.00	2,700.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,800.0	0.00	0.00	2,800.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
2,900.0	0.00	0.00	2,900.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,000.0	0.00	0.00	3,000.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,100.0	0.00	0.00	3,100.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,200.0	0.00	0.00	3,200.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,300.0	0.00	0.00	3,300.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,400.0	0.00	0.00	3,400.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,500.0	0.00	0.00	3,500.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,600.0	0.00	0.00	3,600.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,700.0	0.00	0.00	3,700.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,800.0	0.00	0.00	3,800.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
3,900.0	0.00	0.00	3,900.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,000.0	0.00	0.00	4,000.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,100.0	0.00	0.00	4,100.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,200.0	0.00	0.00	4,200.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,300.0	0.00	0.00	4,300.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,400.0	0.00	0.00	4,400.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,500.0	0.00	0.00	4,500.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,600.0	0.00	0.00	4,600.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,700.0	0.00	0.00	4,700.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,800.0	0.00	0.00	4,800.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
4,900.0	0.00	0.00	4,900.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
5,000.0	0.00	0.00	5,000.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
5,100.0	0.00	0.00	5,100.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
5,200.0	0.00	0.00	5,200.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
5,300.0	0.00	0.00	5,300.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
5,400.0	0.00	0.00	5,400.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W

# BTA

## Planning Report - Geographic

Database: EDM 5000.1 Single User Db  
 Company: BTA Oil Producers, LLC  
 Project: Lea County, NM (NAD 83)  
 Site: Vaca Draw Sec 10, T25S, R33E  
 Well: Vaca Draw #13H  
 Wellbore: Wellbore #1  
 Design: Design #1

Local Co-ordinate Reference: Well Vaca Draw #13H  
 TVD Reference: GL @ 3389.0usft  
 MD Reference: GL @ 3389.0usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,500.0	0.00	0.00	5,500.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
5,600.0	0.00	0.00	5,600.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
5,700.0	0.00	0.00	5,700.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
5,800.0	0.00	0.00	5,800.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
5,900.0	0.00	0.00	5,900.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
6,000.0	0.00	0.00	6,000.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
6,100.0	0.00	0.00	6,100.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
6,200.0	0.00	0.00	6,200.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
6,300.0	0.00	0.00	6,300.0	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
6,313.9	0.00	0.00	6,313.9	0.0	0.0	414,940.80	779,291.40	32° 8' 18.299 N	103° 33' 52.428 W
6,400.0	1.72	237.59	6,400.0	-0.7	-1.1	414,940.11	779,290.31	32° 8' 18.292 N	103° 33' 52.441 W
6,500.0	3.72	237.59	6,499.9	-3.2	-5.1	414,937.56	779,286.30	32° 8' 18.267 N	103° 33' 52.488 W
6,513.9	4.00	237.59	6,513.8	-3.7	-5.9	414,937.06	779,285.51	32° 8' 18.262 N	103° 33' 52.497 W
6,600.0	4.00	237.59	6,599.6	-7.0	-11.0	414,933.84	779,280.44	32° 8' 18.231 N	103° 33' 52.557 W
6,700.0	4.00	237.59	6,699.4	-10.7	-16.8	414,930.10	779,274.55	32° 8' 18.194 N	103° 33' 52.625 W
6,800.0	4.00	237.59	6,799.1	-14.4	-22.7	414,926.36	779,268.66	32° 8' 18.158 N	103° 33' 52.694 W
6,900.0	4.00	237.59	6,898.9	-18.2	-28.6	414,922.62	779,262.77	32° 8' 18.121 N	103° 33' 52.763 W
7,000.0	4.00	237.59	6,998.7	-21.9	-34.5	414,918.89	779,256.88	32° 8' 18.085 N	103° 33' 52.832 W
7,100.0	4.00	237.59	7,098.4	-25.7	-40.4	414,915.15	779,250.99	32° 8' 18.048 N	103° 33' 52.901 W
7,200.0	4.00	237.59	7,198.2	-29.4	-46.3	414,911.41	779,245.11	32° 8' 18.011 N	103° 33' 52.969 W
7,300.0	4.00	237.59	7,297.9	-33.1	-52.2	414,907.67	779,239.22	32° 8' 17.975 N	103° 33' 53.038 W
7,400.0	4.00	237.59	7,397.7	-36.9	-58.1	414,903.93	779,233.33	32° 8' 17.938 N	103° 33' 53.107 W
7,500.0	4.00	237.59	7,497.4	-40.6	-64.0	414,900.19	779,227.44	32° 8' 17.902 N	103° 33' 53.176 W
7,600.0	4.00	237.59	7,597.2	-44.3	-69.8	414,896.45	779,221.55	32° 8' 17.865 N	103° 33' 53.244 W
7,700.0	4.00	237.59	7,696.9	-48.1	-75.7	414,892.71	779,215.66	32° 8' 17.829 N	103° 33' 53.313 W
7,800.0	4.00	237.59	7,796.7	-51.8	-81.6	414,888.97	779,209.77	32° 8' 17.792 N	103° 33' 53.382 W
7,900.0	4.00	237.59	7,896.5	-55.6	-87.5	414,885.23	779,203.88	32° 8' 17.755 N	103° 33' 53.451 W
8,000.0	4.00	237.59	7,996.2	-59.3	-93.4	414,881.50	779,197.99	32° 8' 17.719 N	103° 33' 53.520 W
8,100.0	4.00	237.59	8,096.0	-63.0	-99.3	414,877.76	779,192.11	32° 8' 17.682 N	103° 33' 53.588 W
8,200.0	4.00	237.59	8,195.7	-66.8	-105.2	414,874.02	779,186.22	32° 8' 17.646 N	103° 33' 53.657 W
8,300.0	4.00	237.59	8,295.5	-70.5	-111.1	414,870.28	779,180.33	32° 8' 17.609 N	103° 33' 53.726 W
8,400.0	4.00	237.59	8,395.2	-74.3	-117.0	414,866.54	779,174.44	32° 8' 17.572 N	103° 33' 53.795 W
8,500.0	4.00	237.59	8,495.0	-78.0	-122.8	414,862.80	779,168.55	32° 8' 17.536 N	103° 33' 53.864 W
8,600.0	4.00	237.59	8,594.8	-81.7	-128.7	414,859.06	779,162.66	32° 8' 17.499 N	103° 33' 53.932 W
8,700.0	4.00	237.59	8,694.5	-85.5	-134.6	414,855.32	779,156.77	32° 8' 17.463 N	103° 33' 54.001 W
8,800.0	4.00	237.59	8,794.3	-89.2	-140.5	414,851.58	779,150.88	32° 8' 17.426 N	103° 33' 54.070 W
8,900.0	4.00	237.59	8,894.0	-93.0	-146.4	414,847.85	779,145.00	32° 8' 17.390 N	103° 33' 54.139 W
9,000.0	4.00	237.59	8,993.8	-96.7	-152.3	414,844.11	779,139.11	32° 8' 17.353 N	103° 33' 54.208 W
9,100.0	4.00	237.59	9,093.5	-100.4	-158.2	414,840.37	779,133.22	32° 8' 17.316 N	103° 33' 54.276 W
9,200.0	4.00	237.59	9,193.3	-104.2	-164.1	414,836.63	779,127.33	32° 8' 17.280 N	103° 33' 54.345 W
9,300.0	4.00	237.59	9,293.1	-107.9	-170.0	414,832.89	779,121.44	32° 8' 17.243 N	103° 33' 54.414 W
9,400.0	4.00	237.59	9,392.8	-111.7	-175.8	414,829.15	779,115.55	32° 8' 17.207 N	103° 33' 54.483 W
9,500.0	4.00	237.59	9,492.6	-115.4	-181.7	414,825.41	779,109.66	32° 8' 17.170 N	103° 33' 54.552 W
9,600.0	4.00	237.59	9,592.3	-119.1	-187.6	414,821.67	779,103.77	32° 8' 17.133 N	103° 33' 54.620 W
9,700.0	4.00	237.59	9,692.1	-122.9	-193.5	414,817.93	779,097.89	32° 8' 17.097 N	103° 33' 54.689 W
9,800.0	4.00	237.59	9,791.8	-126.6	-199.4	414,814.20	779,092.00	32° 8' 17.060 N	103° 33' 54.758 W
9,900.0	4.00	237.59	9,891.6	-130.3	-205.3	414,810.46	779,086.11	32° 8' 17.024 N	103° 33' 54.827 W
10,000.0	4.00	237.59	9,991.3	-134.1	-211.2	414,806.72	779,080.22	32° 8' 16.987 N	103° 33' 54.896 W
10,100.0	4.00	237.59	10,091.1	-137.8	-217.1	414,802.98	779,074.33	32° 8' 16.951 N	103° 33' 54.964 W
10,200.0	4.00	237.59	10,190.9	-141.6	-223.0	414,799.24	779,068.44	32° 8' 16.914 N	103° 33' 55.033 W
10,300.0	4.00	237.59	10,290.6	-145.3	-228.9	414,795.50	779,062.55	32° 8' 16.877 N	103° 33' 55.102 W
10,400.0	4.00	237.59	10,390.4	-149.0	-234.7	414,791.76	779,056.66	32° 8' 16.841 N	103° 33' 55.171 W
10,500.0	4.00	237.59	10,490.1	-152.8	-240.6	414,788.02	779,050.78	32° 8' 16.804 N	103° 33' 55.240 W
10,600.0	4.00	237.59	10,589.9	-156.5	-246.5	414,784.28	779,044.89	32° 8' 16.768 N	103° 33' 55.308 W
10,700.0	4.00	237.59	10,689.6	-160.3	-252.4	414,780.55	779,039.00	32° 8' 16.731 N	103° 33' 55.377 W



**BTA**  
Planning Report - Geographic

Database: EDM 5000.1 Single User Db  
Company: BTA Oil Producers, LLC  
Project: Lea County, NM (NAD 83)  
Site: Vaca Draw Sec 10, T25S, R33E  
Well: Vaca Draw #13H  
Wellbore: Wellbore #1  
Design: Design #1

Local Co-ordinate Reference: Well Vaca Draw #13H  
TVD Reference: GL @ 3389.0usft  
MD Reference: GL @ 3389.0usft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
10,800.0	4.00	237.59	10,789.4	-164.0	-258.3	414,776.81	779,033.11	32° 8' 16.695 N	103° 33' 55.446 W	
10,900.0	4.00	237.59	10,889.2	-167.7	-264.2	414,773.07	779,027.22	32° 8' 16.658 N	103° 33' 55.515 W	
11,000.0	4.00	237.59	10,988.9	-171.5	-270.1	414,769.33	779,021.33	32° 8' 16.621 N	103° 33' 55.584 W	
11,100.0	4.00	237.59	11,088.7	-175.2	-276.0	414,765.59	779,015.44	32° 8' 16.585 N	103° 33' 55.652 W	
11,200.0	4.00	237.59	11,188.4	-179.0	-281.9	414,761.85	779,009.55	32° 8' 16.548 N	103° 33' 55.721 W	
11,300.0	4.00	237.59	11,288.2	-182.7	-287.7	414,758.11	779,003.67	32° 8' 16.512 N	103° 33' 55.790 W	
11,400.0	4.00	237.59	11,387.9	-186.4	-293.6	414,754.37	778,997.78	32° 8' 16.475 N	103° 33' 55.859 W	
11,500.0	4.00	237.59	11,487.7	-190.2	-299.5	414,750.63	778,991.89	32° 8' 16.438 N	103° 33' 55.928 W	
11,600.0	4.00	237.59	11,587.4	-193.9	-305.4	414,746.90	778,986.00	32° 8' 16.402 N	103° 33' 55.996 W	
11,662.9	4.00	237.59	11,650.2	-196.3	-309.1	414,744.54	778,982.30	32° 8' 16.379 N	103° 33' 56.040 W	
11,700.0	3.26	237.59	11,687.2	-197.5	-311.1	414,743.29	778,980.31	32° 8' 16.367 N	103° 33' 56.063 W	
11,800.0	1.26	237.59	11,787.1	-199.6	-314.4	414,741.17	778,976.99	32° 8' 16.346 N	103° 33' 56.102 W	
11,862.9	0.00	0.00	11,850.0	-200.0	-315.0	414,740.80	778,976.41	32° 8' 16.342 N	103° 33' 56.108 W	
11,900.0	0.00	0.00	11,887.1	-200.0	-315.0	414,740.80	778,976.41	32° 8' 16.342 N	103° 33' 56.108 W	
11,913.9	0.00	0.00	11,901.0	-200.0	-315.0	414,740.80	778,976.41	32° 8' 16.342 N	103° 33' 56.108 W	
12,000.0	8.61	359.67	11,986.8	-193.5	-315.0	414,747.26	778,976.37	32° 8' 16.406 N	103° 33' 56.108 W	
12,100.0	18.61	359.67	12,083.9	-170.0	-315.2	414,770.76	778,976.23	32° 8' 16.639 N	103° 33' 56.108 W	
12,200.0	28.61	359.67	12,175.4	-130.0	-315.4	414,810.76	778,976.00	32° 8' 17.034 N	103° 33' 56.107 W	
12,300.0	38.61	359.67	12,258.6	-74.8	-315.7	414,866.04	778,975.67	32° 8' 17.582 N	103° 33' 56.106 W	
12,400.0	48.61	359.67	12,330.9	-5.9	-316.1	414,934.92	778,975.27	32° 8' 18.263 N	103° 33' 56.105 W	
12,500.0	58.61	359.67	12,390.1	74.5	-316.6	415,015.31	778,974.80	32° 8' 19.059 N	103° 33' 56.104 W	
12,600.0	68.61	359.67	12,434.5	164.0	-317.1	415,104.77	778,974.28	32° 8' 19.944 N	103° 33' 56.103 W	
12,700.0	78.61	359.67	12,462.7	259.8	-317.7	415,200.58	778,973.72	32° 8' 20.892 N	103° 33' 56.101 W	
12,800.0	88.61	359.67	12,473.8	359.0	-318.3	415,299.83	778,973.14	32° 8' 21.874 N	103° 33' 56.100 W	
12,813.9	90.00	359.67	12,474.0	372.9	-318.3	415,313.74	778,973.06	32° 8' 22.012 N	103° 33' 56.100 W	
12,900.0	90.00	359.67	12,474.0	459.0	-318.8	415,399.82	778,972.56	32° 8' 22.864 N	103° 33' 56.098 W	
13,000.0	90.00	359.67	12,474.0	559.0	-319.4	415,499.82	778,971.98	32° 8' 23.853 N	103° 33' 56.097 W	
13,100.0	90.00	359.67	12,474.0	659.0	-320.0	415,599.82	778,971.39	32° 8' 24.843 N	103° 33' 56.095 W	
13,200.0	90.00	359.67	12,474.0	759.0	-320.6	415,699.81	778,970.81	32° 8' 25.832 N	103° 33' 56.094 W	
13,300.0	90.00	359.67	12,474.0	859.0	-321.2	415,799.81	778,970.23	32° 8' 26.822 N	103° 33' 56.092 W	
13,400.0	90.00	359.67	12,474.0	959.0	-321.8	415,899.80	778,969.64	32° 8' 27.811 N	103° 33' 56.091 W	
13,500.0	90.00	359.67	12,474.0	1,059.0	-322.3	415,999.80	778,969.06	32° 8' 28.801 N	103° 33' 56.089 W	
13,600.0	90.00	359.67	12,474.0	1,159.0	-322.9	416,099.79	778,968.48	32° 8' 29.790 N	103° 33' 56.088 W	
13,700.0	90.00	359.67	12,474.0	1,259.0	-323.5	416,199.79	778,967.89	32° 8' 30.780 N	103° 33' 56.086 W	
13,800.0	90.00	359.67	12,474.0	1,359.0	-324.1	416,299.79	778,967.31	32° 8' 31.769 N	103° 33' 56.085 W	
13,900.0	90.00	359.67	12,474.0	1,459.0	-324.7	416,399.78	778,966.73	32° 8' 32.759 N	103° 33' 56.083 W	
14,000.0	90.00	359.67	12,474.0	1,559.0	-325.3	416,499.78	778,966.14	32° 8' 33.749 N	103° 33' 56.082 W	
14,100.0	90.00	359.67	12,474.0	1,659.0	-325.8	416,599.77	778,965.56	32° 8' 34.738 N	103° 33' 56.080 W	
14,200.0	90.00	359.67	12,474.0	1,759.0	-326.4	416,699.77	778,964.98	32° 8' 35.728 N	103° 33' 56.079 W	
14,300.0	90.00	359.67	12,474.0	1,859.0	-327.0	416,799.76	778,964.39	32° 8' 36.717 N	103° 33' 56.077 W	
14,400.0	90.00	359.67	12,474.0	1,959.0	-327.6	416,899.76	778,963.81	32° 8' 37.707 N	103° 33' 56.076 W	
14,500.0	90.00	359.67	12,474.0	2,059.0	-328.2	416,999.76	778,963.22	32° 8' 38.696 N	103° 33' 56.074 W	
14,600.0	90.00	359.67	12,474.0	2,159.0	-328.8	417,099.75	778,962.64	32° 8' 39.686 N	103° 33' 56.073 W	
14,700.0	90.00	359.67	12,474.0	2,259.0	-329.3	417,199.75	778,962.06	32° 8' 40.675 N	103° 33' 56.071 W	
14,800.0	90.00	359.67	12,474.0	2,359.0	-329.9	417,299.74	778,961.47	32° 8' 41.665 N	103° 33' 56.070 W	
14,900.0	90.00	359.67	12,474.0	2,459.0	-330.5	417,399.74	778,960.89	32° 8' 42.654 N	103° 33' 56.068 W	
15,000.0	90.00	359.67	12,474.0	2,559.0	-331.1	417,499.73	778,960.31	32° 8' 43.644 N	103° 33' 56.067 W	
15,100.0	90.00	359.67	12,474.0	2,659.0	-331.7	417,599.73	778,959.72	32° 8' 44.633 N	103° 33' 56.065 W	
15,200.0	90.00	359.67	12,474.0	2,759.0	-332.3	417,699.73	778,959.14	32° 8' 45.623 N	103° 33' 56.064 W	
15,300.0	90.00	359.67	12,474.0	2,859.0	-332.8	417,799.72	778,958.56	32° 8' 46.612 N	103° 33' 56.062 W	
15,400.0	90.00	359.67	12,474.0	2,959.0	-333.4	417,899.72	778,957.97	32° 8' 47.602 N	103° 33' 56.061 W	
15,500.0	90.00	359.67	12,474.0	3,059.0	-334.0	417,999.71	778,957.39	32° 8' 48.591 N	103° 33' 56.059 W	
15,600.0	90.00	359.67	12,474.0	3,159.0	-334.6	418,099.71	778,956.81	32° 8' 49.581 N	103° 33' 56.058 W	
15,700.0	90.00	359.67	12,474.0	3,259.0	-335.2	418,199.70	778,956.22	32° 8' 50.571 N	103° 33' 56.056 W	
15,800.0	90.00	359.67	12,474.0	3,359.0	-335.8	418,299.70	778,955.64	32° 8' 51.560 N	103° 33' 56.055 W	

**BTA**  
Planning Report - Geographic

Database: EDM 5000.1 Single User Db  
Company: BTA Oil Producers, LLC  
Project: Lea County, NM (NAD 83)  
Site: Vaca Draw Sec 10, T25S, R33E  
Well: Vaca Draw #13H  
Wellbore: Wellbore #1  
Design: Design #1

Local Co-ordinate Reference: Well Vaca Draw #13H  
TVD Reference: GL @ 3389.0usft  
MD Reference: GL @ 3389.0usft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature

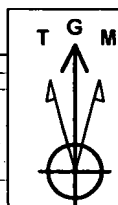
**Planned Survey**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,900.0	90.00	359.67	12,474.0	3,459.0	-336.3	418,399.70	778,955.06	32° 8' 52.550 N	103° 33' 56.053 W
16,000.0	90.00	359.67	12,474.0	3,559.0	-336.9	418,499.69	778,954.47	32° 8' 53.539 N	103° 33' 56.052 W
16,100.0	90.00	359.67	12,474.0	3,659.0	-337.5	418,599.69	778,953.89	32° 8' 54.529 N	103° 33' 56.050 W
16,200.0	90.00	359.67	12,474.0	3,759.0	-338.1	418,699.68	778,953.31	32° 8' 55.518 N	103° 33' 56.049 W
16,300.0	90.00	359.67	12,474.0	3,859.0	-338.7	418,799.68	778,952.72	32° 8' 56.508 N	103° 33' 56.047 W
16,400.0	90.00	359.67	12,474.0	3,959.0	-339.3	418,899.67	778,952.14	32° 8' 57.497 N	103° 33' 56.046 W
16,500.0	90.00	359.67	12,474.0	4,059.0	-339.9	418,999.67	778,951.56	32° 8' 58.487 N	103° 33' 56.044 W
16,600.0	90.00	359.67	12,474.0	4,159.0	-340.4	419,099.66	778,950.97	32° 8' 59.476 N	103° 33' 56.043 W
16,700.0	90.00	359.67	12,474.0	4,259.0	-341.0	419,199.66	778,950.39	32° 9' 0.466 N	103° 33' 56.041 W
16,800.0	90.00	359.67	12,474.0	4,359.0	-341.6	419,299.66	778,949.80	32° 9' 1.455 N	103° 33' 56.040 W
16,900.0	90.00	359.67	12,474.0	4,459.0	-342.2	419,399.65	778,949.22	32° 9' 2.445 N	103° 33' 56.038 W
17,000.0	90.00	359.67	12,474.0	4,559.0	-342.8	419,499.65	778,948.64	32° 9' 3.434 N	103° 33' 56.037 W
17,100.0	90.00	359.67	12,474.0	4,659.0	-343.4	419,599.64	778,948.05	32° 9' 4.424 N	103° 33' 56.035 W
17,200.0	90.00	359.67	12,474.0	4,759.0	-343.9	419,699.64	778,947.47	32° 9' 5.413 N	103° 33' 56.034 W
17,300.0	90.00	359.67	12,474.0	4,859.0	-344.5	419,799.63	778,946.89	32° 9' 6.403 N	103° 33' 56.032 W
17,400.0	90.00	359.67	12,474.0	4,959.0	-345.1	419,899.63	778,946.30	32° 9' 7.392 N	103° 33' 56.031 W
17,452.6	90.00	359.67	12,474.0	5,011.5	-345.4	419,952.20	778,946.00	32° 9' 7.913 N	103° 33' 56.030 W

**Design Targets**

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Vaca #13H BHL	0.00	0.00	12,474.0	5,011.5	-345.4	419,952.20	778,946.00	32° 9' 7.913 N	103° 33' 56.030 W
- plan hits target center									
- Point									

# BTA Oil Producers, LLC



Azimuths to Grid North  
 True North: -0.41°  
 Magnetic North: 7.33°  
 Magnetic Field  
 Strength: 48742.4snT  
 Dip Angle: 60.16°  
 Date: 12/31/2009  
 Model: IGRF200510

## SITE DETAILS: Vaca Draw Sec 10, T25S, R33E

Site Centre Northing: 419812.34  
 Easting: 779596.22

Positional Uncertainty: 0.0  
 Convergence: 0.41  
 Local North: Grid

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00
2	6313.9	0.00	0.00	6313.9	0.0	0.0	0.00
3	6513.9	4.00	237.59	6513.8	-3.7	-5.9	2.00
4	11662.9	4.00	237.59	11650.2	-196.3	-309.1	0.00
5	11862.9	0.00	0.00	11850.0	-200.0	-315.0	2.00
6	11913.9	0.00	0.00	11901.0	-200.0	-315.0	0.00
7	12813.9	90.00	359.67	12474.0	372.9	-318.3	10.00
8	17452.6	90.00	359.67	12474.0	5011.5	-345.4	0.00

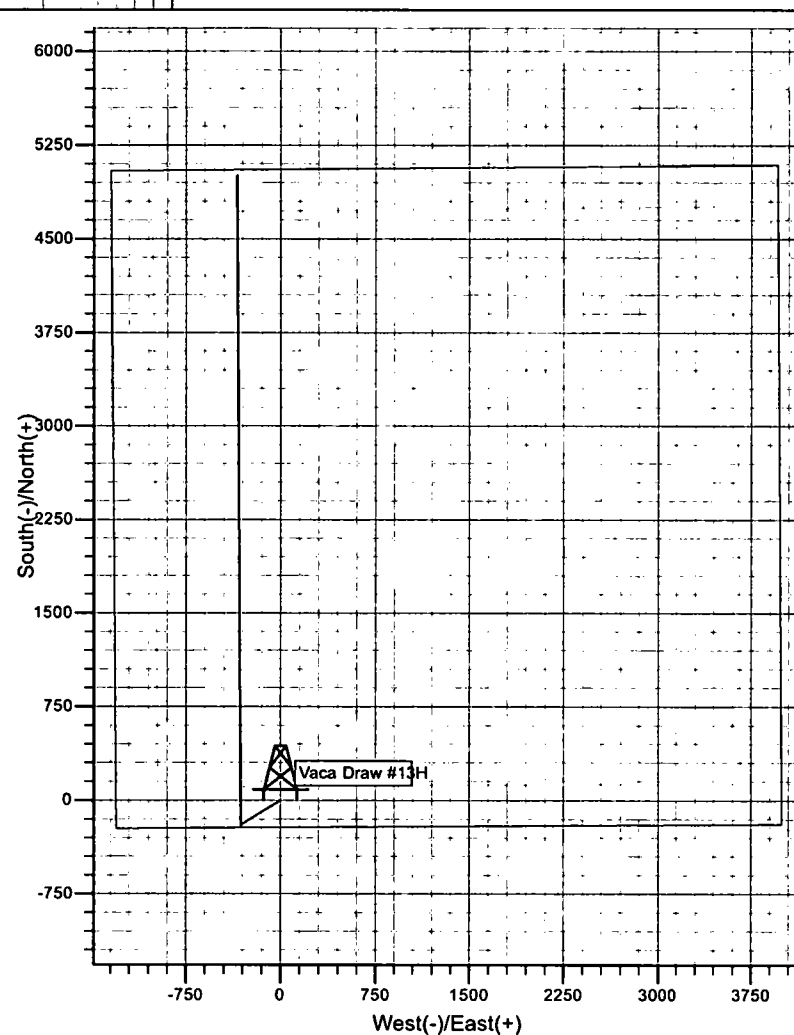
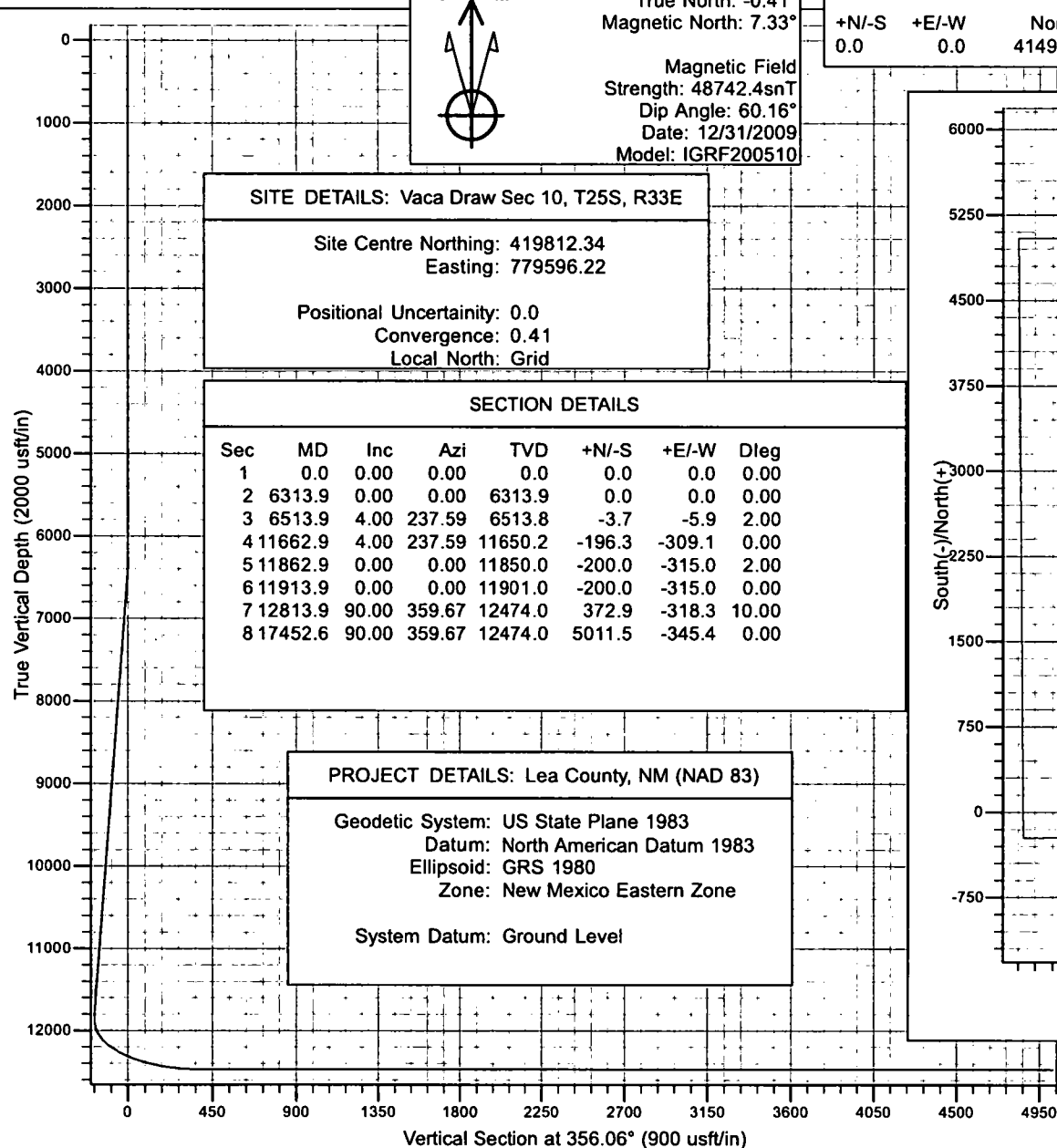
## PROJECT DETAILS: Lea County, NM (NAD 83)

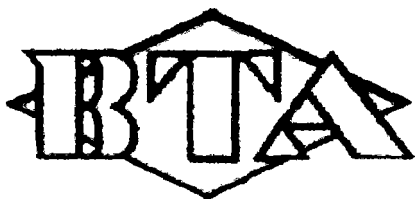
Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 Zone: New Mexico Eastern Zone

System Datum: Ground Level

## WELL DETAILS: Vaca Draw #13H

Ground Level: 3389.0  
 +N/-S +E/-W Northing Easting Latitude Longitude  
 0.0 0.0 414940.80 779291.40 32° 8' 18.299 103° 33' 52.429 W





## Multi-Bowl System

13-5/8" x 9-5/8" x 7"

With 4-1/2" liner  
downhole

### Tubing head

13-5/8" 10M x 7-1/16" 10M

7-1/16-10M

13-5/8" 10M

### Casing spool

13-5/8" 5M x 13-5/8" 10M

13-5/8" x 7" C-22  
Csg hanger

1-1/2" VR Plug

13-5/8"-5M

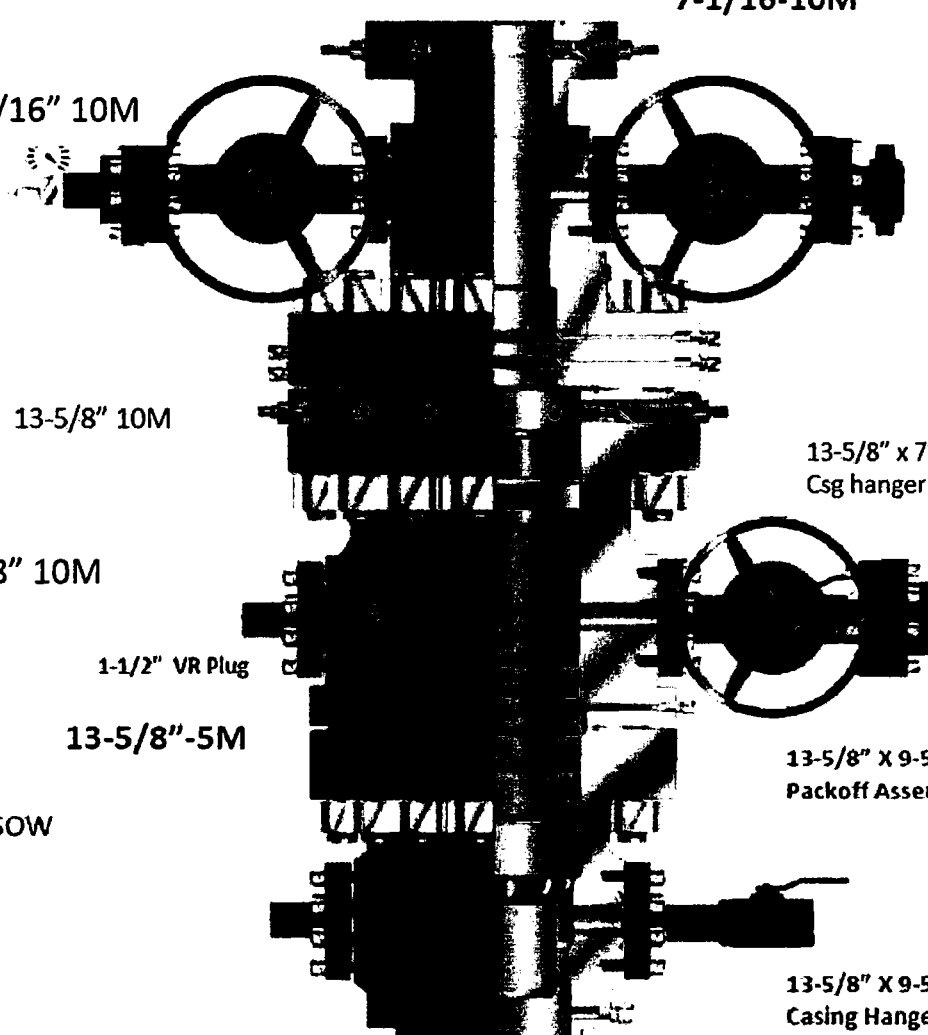
### Casing Head- MBS

13-5/8"-5M X 13-3/8" SOW

13-5/8" X 9-5/8" MBS  
Packoff Assembly

13-5/8" X 9-5/8" Mandrel  
Casing Hanger

13-3/8" SOW





# Weatherford®

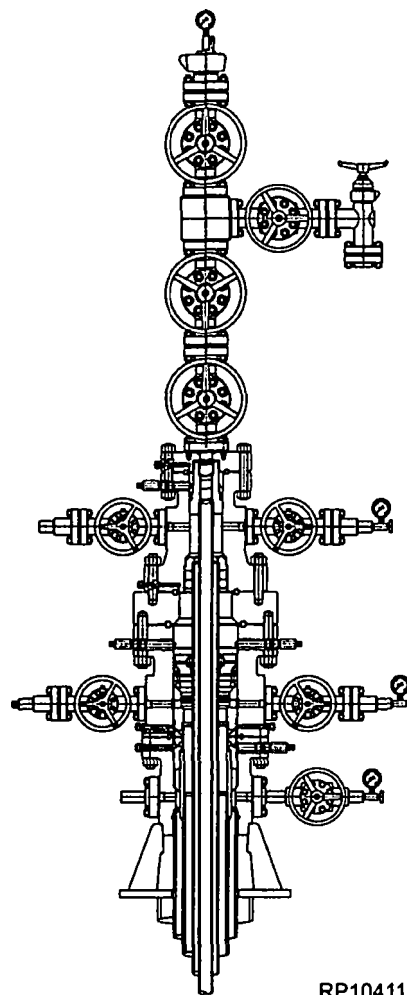


## Wellhead Field Service Manual

### WFT-SB Wellhead System Running Procedure


Publication: SM-11-1

Release Date: December 2014



RP104114

©2014 Weatherford International Ltd. All Rights Reserved

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-11-1</b>
		<i>Marion Robertson</i>	<i>Bruce Ross</i>	<i>Manuel Zaragoza</i>	<b>Rev WIP</b>
		Marion Robertson	Bruce Ross	Manuel Zaragoza	Page 1 of 24
		Dec 2014	Dec 2014	Dec 2014	


## Table of Content

### WFT-Split Bowl (SB) Wellhead System

Wellhead System Assembly Drawing .....	3
--	---

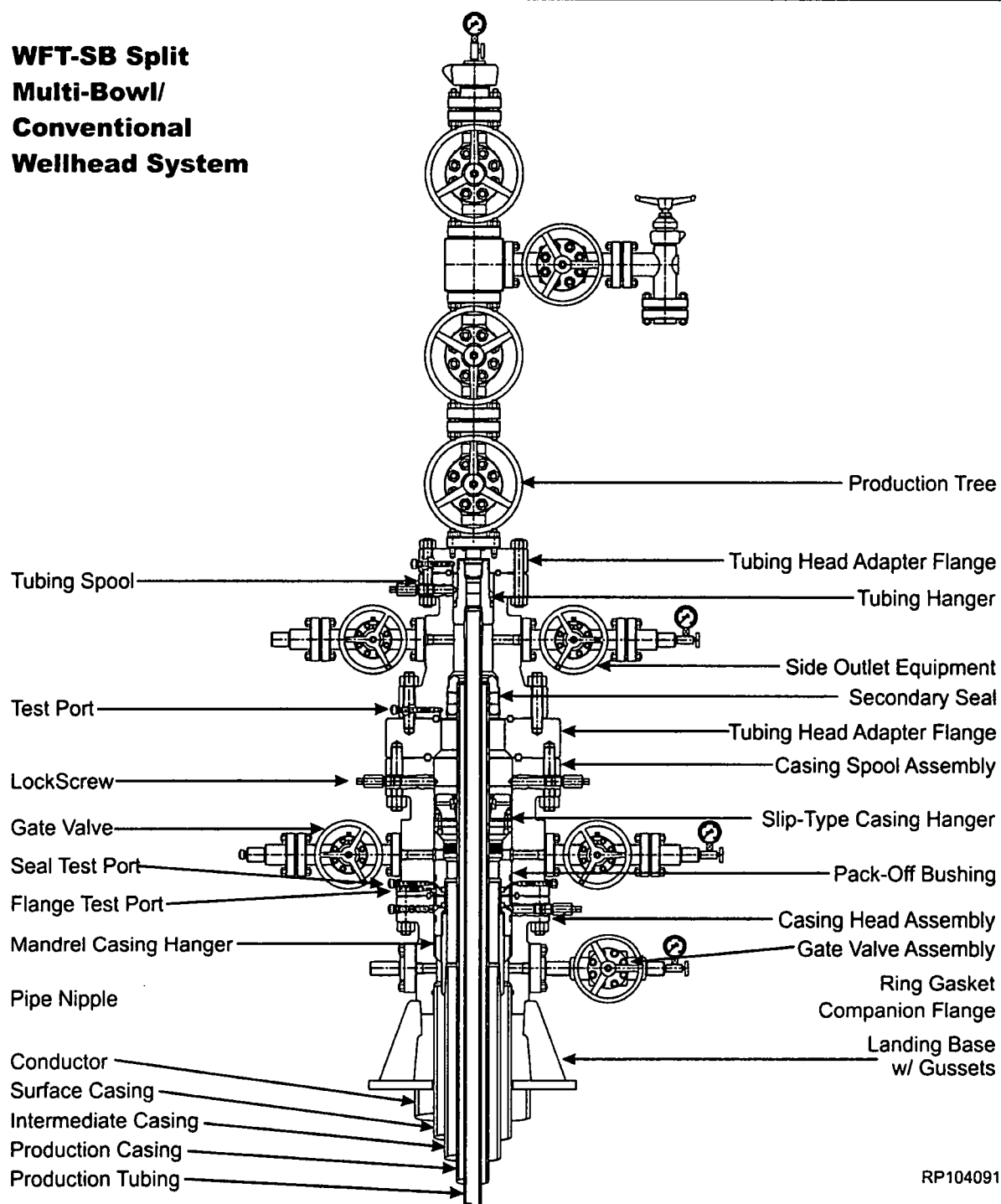
### Running Procedure

Casing Head/Spool Assembly Rig-Up and Installation .....	4
Testing the BOP .....	5
Running and Retrieving the Long Bowl Protector.....	3
Running the Bowl Protector Prior to Drilling .....	6
Retrieving the Bowl Protector After Drilling .....	7
Hanging Off the Intermediate Casing.....	7
Hanging Off the Intermediate Casing- Contingency Completion.....	9
Installation of the Pack-Off Bushing and Energizing the Seals .....	10
Installation .....	10
Energizing the Seal .....	12
Retesting the BOP Stack .....	14
Running and Retrieving the Short Bowl Protector .....	15
Running Short Bowl Protector .....	15
Retrieving the Short Bowl Protector .....	16
Running the Production Casing .....	16
Installation of the Slip-Type Casing Hanger Under the BOP Stack .....	16
Installation of the Slip-Type Casing Hanger Through the BOP Stack.....	17
Hanging Off the Production Casing .....	18
Installation and Testing the Tubing Spool Assembly .....	20
Installation .....	20
Testing the Secondary Seal and Flange Connection .....	20
Testing the BOP .....	21
Hanging Off the Production Tubing String.....	22
Installing and Testing of the Production Tree.....	23
Installation .....	23
Testing .....	24

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Services Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 2 of 24
		Dec 2014	Dec 2014	Dec 2014	

## WFT Split Bowl (SB) Wellhead System

### WFT-SB Split Multi-Bowl/ Conventional Wellhead System



RP104091



**Weatherford**

5-3-GL-GL-WES-00XXX

### Field Service Manual

Prepared By:

*Marion Robertson*

Marion Robertson

December 2014

Reviewed By:

Brad Franks

Brad Franks

December 2014

Approved By:

Manual Zaragoza

Manual Zaragoza

December 2014

**SM-13-1**

**Rev WIP**

Page 3 of 24

## WFT Split Bowl (SB) Multi-Bowl/Conventional Wellhead System (Continued)

### WFT-SB Casing Head/Spool Assembly Rig Up and Installation

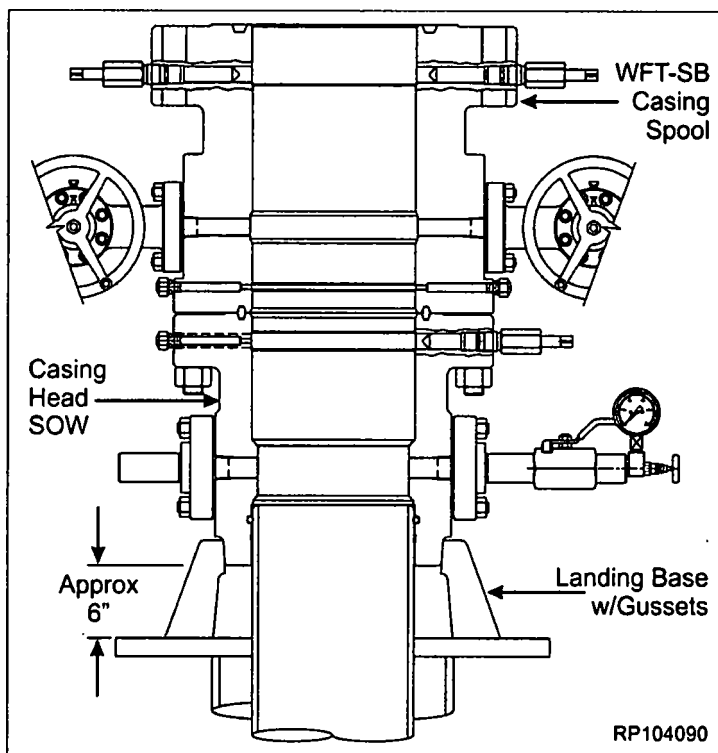
1. Determine the correct elevation for the wellhead system, and cut the conductor pipe at a comfortable elevation, below the surface casing final cut.

#### NOTE

Ensure that the cut on the conductor is level, as this will determine the orientation of all remaining wellhead equipment.

2. Remove any excess conductor pipe and set aside.
3. Grind the conductor pipe and remove any sharp edges, ensuring that the conductor pipe cut is level.
4. Run the surface casing to the required depth and cement casing in place. Allow the cement to set.
5. Lift the blow-out preventer (BOP) or diverter and prepare to cut off the surface casing at a sufficient height above the cellar deck to facilitate the installation of the WFT-SB Casing Head/Spool Assembly with Base Plate.
6. Once the surface casing is released from the rig floor, cut it approximately 12 inches (or more) above the final cut location.
7. Remove the excess surface casing, and the BOP or diverter, and set aside.
8. Bevel the surface casing outer diameter (3/16" x 3/8") and inner diameter (1/8" x 45 degrees). Remove any sharp edges.

9. Examine the Casing Head with Slip-On Weld (SOW) bottom prep. Verify the following:
  - O-ring seal, bore, ports and exposed ring grooves are clean and in good condition.
  - Test fittings, studs and nuts, valves, flanges and bull plugs are intact and in good condition.




10. Determine the correct elevation for the wellhead assembly. Measure depth of the surface casing socket in SOW with O-ring bottom prep.
11. Lightly lubricate the casing stub with an oil or light grease.

#### WARNING

Excessive oil or grease will prevent a positive seal from forming.

12. Align and level the WFT-SB Casing Head/Spool Assembly over the casing stub, orienting the outlets to drilling equipment, per the drilling supervisor's direction.

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 4 of 24
		December 2014	December 2014	December 2014	



## WFT Split Bowl (SB) Wellhead System (Continued)

14. Slowly and carefully lower the assembly over the casing stub until the stub bottoms in the casing socket.
15. Remove the test fitting from the casing head test port, and set aside.
16. Ensure that the WFT-SB Casing Head/Spool Assembly is plumb and level.
17. Weld and test the surface casing using the recommended welding procedure located in the Appendices Section of this manual.

### Testing the BOP Stack

1. Examine the Test Plug/Running & Retrieval Tool. Verify the following:
  - Elastomer seals, threads and plugs are intact and in good condition.
  - Drill pipe threads are correct size, clean and in good condition.
2. Install a new, appropriately sized ring gasket in the ring groove of the WFT-SB Spool and make up the BOP stack.

### NOTE

Immediately after make-up of the BOP stack and periodically during drilling of hole for the casing string, the BOP stack (flanged connections and rams) must be tested.

3. Orient the test plug with elastomer down/ACME threads up, and make up a joint of drill pipe to the test plug.

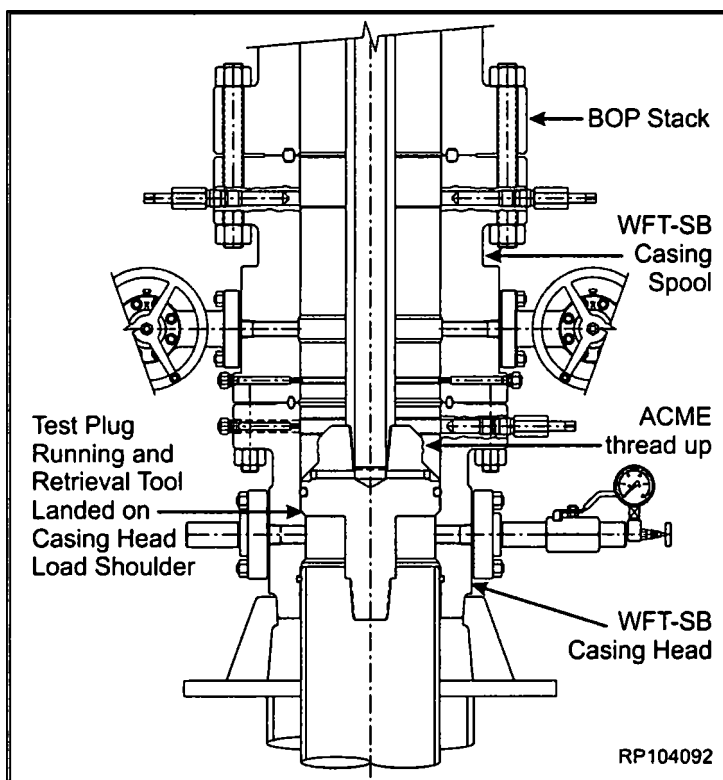
### NOTE


If pressure is to be supplied through the drill pipe, remove the pipe plug from the weep port.

### CAUTION

Ensure that the test plug elastomer is down and Acme threads are up when testing.

4. Fully retract all lockscrews in the entire WFT-SB casing head/spool assembly.
5. Lubricate the test plug elastomer seal with a light oil or grease.
6. Lower the test plug through the BOP stack into the WFT-SB assembly, until it lands on the casing head load shoulder.



 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 5 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

7. Open lower casing head side outlet valve. Monitor any leakage past the test plug seal.
  8. Close the BOP rams on the drill pipe, and test to 5,000 psi or as required by the drilling supervisor.
  9. After a satisfactory test is achieved, release pressure and open the rams.
  10. Remove as much fluid from the BOP stack as possible.
  11. Retrieve the test plug assembly slowly to avoid damage to the seal.
  12. Close all outlet valves on WFT-SB Casing Head/Spool Assembly.
  13. Repeat Steps 1 thru 12, as required during drilling of the hole.
2. Examine the Bowl Protector Running/Retrieval Tool. Verify the following:
    - Threads are clean, undamaged and free of debris
    - Ports are clean and unobstructed.
    - Drill Pipe threads are correct size, clean and in good condition.
  3. Orient the Bowl Protector Running Tool with Acme threads down.



Ensure that the left hand (LH) Acme threads are down prior to engaging Bowl Protector Running Tool into Long Bowl Protector.

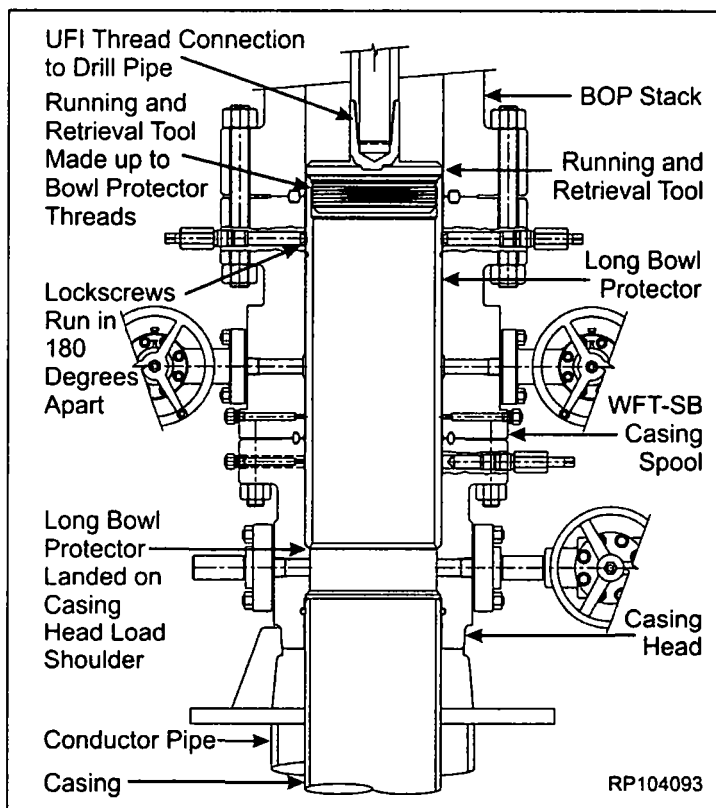
### Running and Retrieval of the Long Bowl Protector

#### NOTE


Always use a bowl protector while drilling to protect wellhead load shoulders from damage by drill bit or rotating drill pipe. The bowl protector must be retrieved prior to running the casing string.

#### Running in the Bowl Protector prior to Drilling

1. Examine the Long Bowl Protector. Verify the following:
  - Bore drift is correct size, clean, in good condition, and free of debris
  - Threads are clean and undamaged
  - O-ring seals are properly installed, clean, and undamaged.



RP104093

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 6 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

4. Make-up a drill pipe joint to the Running Tool.
5. Thread Running Tool into the Long Bowl Protector, rotating two turns counterclockwise.
6. Verify that all lockscrews in the WFT-SB Casing Head/Spool Assembly are fully retracted.
7. Slowly lower the Running Tool/Bowl Protector Assembly through the BOP stack and into the WFT-SB Casing Head/Spool Assembly, until it lands securely on the casing head load shoulder.
8. On WFT-SB Casing Spool, run in two Lockscrews ("snug" tight **ONLY**), 180 degrees apart, to hold Bowl Protector in place.

### **WARNING**

Do **NOT** over tighten the lockscrews, as this will cause damage to the Bowl Protector and the lockscrews.

9. Remove the running tool from the bowl protector, by rotating the drill pipe clockwise two turns while lifting straight up.
10. Drill out and prepare to run the casing string per the drilling supervisor's instruction.

### Retrieving the Bowl Protector after Drilling

1. Make-up the retrieval tool to the drill pipe, with Acme threads down.
2. Slowly lower the retrieval tool through the BOP Stack into the Bowl Protector.
3. Rotate the retrieval Tool counterclockwise, two turns, to engage with bowl protector Acme threads.

4. Fully retract both lockscrews on the WFT-SB casing spool, and retrieve the bowl protector.

### **NOTE**

Ensure that all lockscrews in both the upper flange (casing spool) and lower flange (casing head) of the wellhead Assembly are fully retracted from well bore.

5. Remove the bowl protector and the running and retrieval tool from the drill floor.

### Hanging off the Intermediate Casing

1. Run the intermediate casing as required and space out appropriately for the mandrel casing hanger.



### **NOTE**

If the intermediate casing becomes stuck and the mandrel casing hanger cannot be landed, refer to **STAGE 4B**.

2. Examine the WFT-SBD-SN Mandrel Casing Hanger. Verify the following:
  - Bore drift is correct size, clean and free of debris
  - All threads are clean and undamaged.
  - Flow-By flutes are clear and unobstructed.
  - Slick Neck seal area is clean and undamaged.
3. Examine the Mandrel Casing Hanger Running Tool. Verify the following:
  - Threads are clean and in good condition.
  - O-ring seals are clean and undamaged.
4. Thread the mandrel hanger onto the last joint of casing to be run. Torque the connection thread to manufacturer's optimum "make-up" torque value.
5. Make up a landing joint to the top of the running tool. Torque the connection to thread manufacturer's maximum "make-up" torque valve.

### **CAUTION**

If Steps 4 and 5 were performed prior to being shipped to location, the hanger running tool should be backed off and made back up to ensure it will back off freely.

 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
			Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 7 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

6. Liberally lubricate the outer diameter of the hanger neck and inner diameter of the running tool O-ring seals with a light oil or grease.

### **⚠ WARNING ⚠**

Do **NOT** use pipe dope or other metal based compounds. This will cause galling.

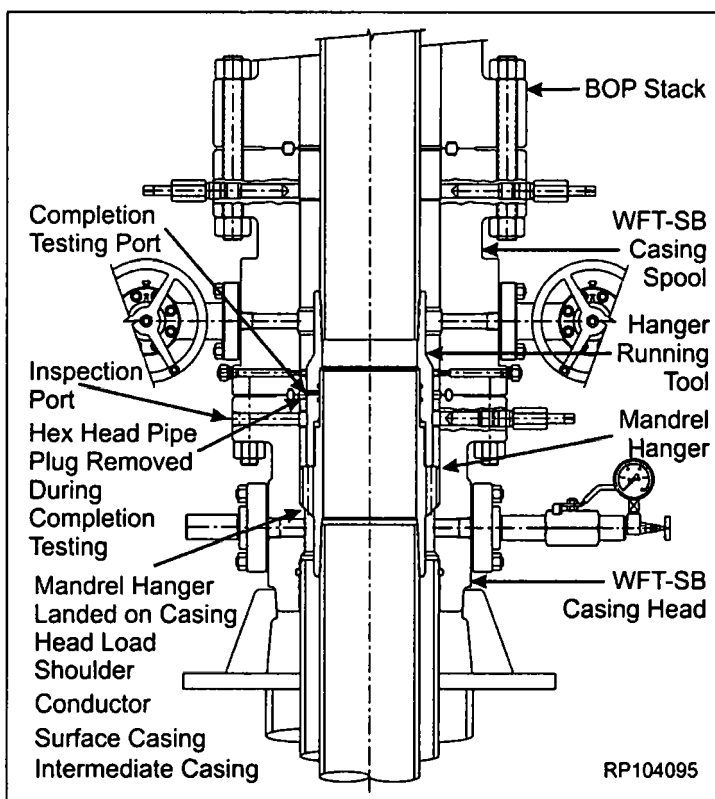
7. Maintaining a neutral weight, rotate the hanger running tool with chain tongs, first clockwise until a thread "jump" can be felt, then counterclockwise, approximately eight turns, to a positive stop, and then back off (clockwise) one quarter (1/4) turn.

### **⚠ CAUTION ⚠**


Do **NOT** torque the running tool to the casing hanger connection. Do **NOT** back off more than one quarter (1/4) turn.

8. Remove the flush fitting hex head pipe plug from the outer diameter of the running tool and attach a test pump.
9. Apply hydraulic test pressure to **5,000 psi** and hold for **15 minutes** or as required by the drilling supervisor.
10. Upon completion of a successful test, bleed off test pressure through the test pump and remove the pump. Replace the pipe plug.
11. Locate indicator groove machined in outer diameter of Running Tool, coat with white paint.

12. Verify that all lockscrews in the WFT-SB casing head/casing spool assembly are fully retracted.
13. Slowly and carefully lower the mandrel hanger through the BOP stack, and land the hanger onto the casing head load shoulder.
14. Slack off weight on the casing.
15. Check that the well is stable and no pressure buildup or mud flow is occurring.



RP104095

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 8 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

16. Drain the BOP stack through the casing head side outlet valves.
17. Remove the pipe plug from the casing head flange port marked "Inspection Port."
18. Visually verify that the running tool groove is in the center of the inspection port, and that the mandrel hanger has landed properly.
19. Reinstall the pipe plug and tighten securely.
20. Place a paint mark on the landing joint level with the rig floor, and cement casing as required.

### NOTE

If the casing is to be reciprocated during cementing, it is advisable to pick up the mandrel hanger a minimum of eight feet above the landing point. Place a mark on the landing joint, level with the rig floor, and then reciprocate above that point. If at any time resistance is felt, land the mandrel casing hanger immediately.



21. Retrieve the hanger running tool and landing joint by rotating landing joint clockwise (to the right), fourteen full turns.

### Hanging off Intermediate Casing – Contingency Completion

### NOTE

The following procedure should **ONLY** be followed if the intermediate casing should become stuck in the hole. If the casing did **NOT** get stuck and is successfully hung off with the mandrel casing hanger, skip this stage.

1. Cement the intermediate casing in accordance with the program, taking returns through the flow-by flutes of the mandrel casing hanger as required.
2. Drain the casing head bowl through the side outlet.
3. Separate the WFT-SB casing spool from the casing head.
4. Pull up on WFT-SB casing spool and suspend it above casing head, high enough to install a WFT-21 Slip Type Casing Hanger.
5. Wash out as required.
6. Examine the WFT-21 slip type casing hanger. Verify the following:
  - Hanger is correct size, clean and undamaged.
  - Slip segments are sharp and in proper position.
  - All screws are in place.
7. Remove the latch screw to open the slip type hanger.
8. Place two boards on the casing head flange, against the casing, to support the hanger.
9. Wrap the hanger around the casing and replace the latch screw.
10. Prepare to lower the hanger into the casing head bowl.
11. Grease the WFT-21 slip type casing hanger body and remove the slip retaining cap screws.
12. Remove the boards and allow the hanger to slide down into the casing head.

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
			Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 9 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

13. Once the hanger has landed securely on the casing head bowl load shoulder, pull tension on the casing to the desired hanging weight, and then slack off.

### NOTE

A sharp decrease on weight indicator will signify that the hanger has taken weight. If this does not occur, pull tension again and slack once more.

14. Rough cut the casing approximately eight inches, or more, above the top of the casing head flange. Remove the excess casing.
15. Final cut the casing at  $2\frac{1}{2}" \pm 1/8"$  above casing head flange.
16. Bevel the casing outer diameter ( $1/4" \times 30$  degrees) and inner diameter ( $1/8" \times 30$  degrees).
17. Remove and discard the used gasket ring from the casing head.
18. Clean the mating ring grooves on the WFT-SB casing spool and casing head. Lightly wipe with oil or grease.

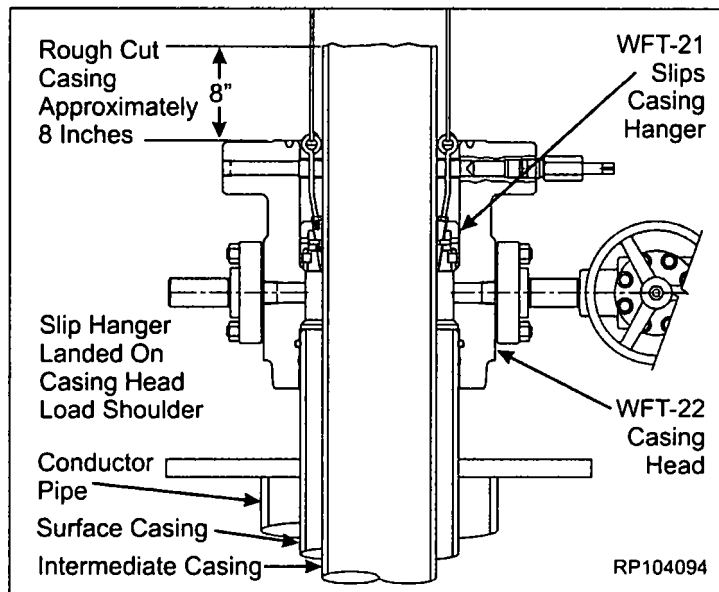
### WARNING

Excessive oil or grease will prevent a positive seal from forming.

19. Install a new appropriately sized ring gasket into the casing head groove.
20. Loosely reconnect or make up the WFT-SB casing spool to the casing head.

### NOTE

The casing spool to casing head connection will be fully tightened after the pack-off bushing is run and proper setting is verified.




## Installation of the Pack-Off Bushing and Energizing the P-Seals

### WFT-SB Pack-Off Bushing Installation

### NOTE

Installation procedure is identical for both Standard and Emergency WFT-SB Pack-Off Bushings.

- Determine which pack-off bushing to use:
  - If casing has been run normally and is hung off with a mandrel casing hanger, use a standard packoff bushing.
- Examine the appropriate pack-off bushing. Verify the following:
  - All elastomer seals are in place and undamaged.
  - Bore, ports and alignment lugs are clean and in good condition.
  - Coat the lockscrew relief groove with white paint.
- Liberal lubricate the inner diameter of the double P-seal grooves and outer diameter of dovetail seals with a light oil or grease.

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 10 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

4. Examine the pack-off bushing running tool. Verify the following:
  - All elastomer seals are properly installed, clean and undamaged
  - Threads are clean, undamaged and free of debris
  - Bore and ports are clean and unobstructed.
5. Make-up a landing joint to the running tool and rack back assembly.
6. Run two or three stands of heavy weight drill pipe or collars in the hole and set floor slips.

### NOTE

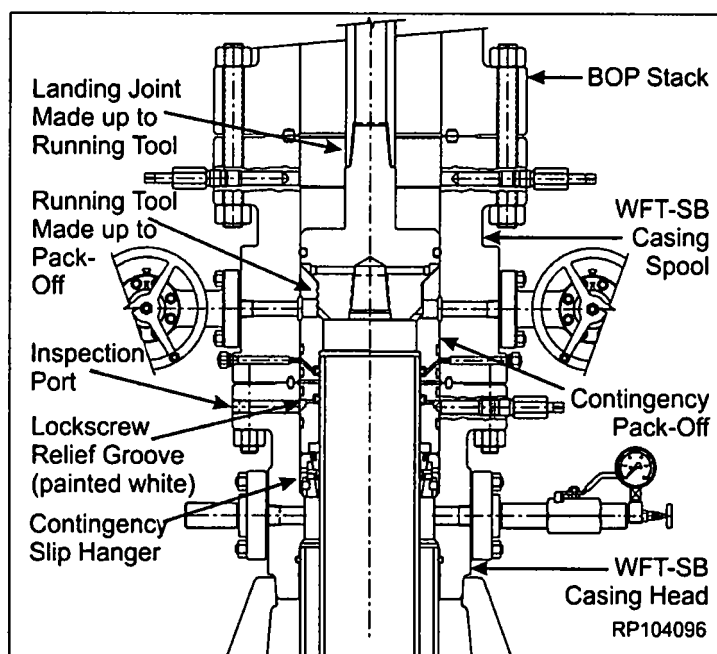
Use heavy weight drill pipe or drill collars. Weight required to push Pack-Off Bushing into Casing Head, over Mandrel Hanger slick neck, is approximately 14,000 lbs.

### WARNING


When lowering the drill pipe into the well, extreme caution must be taken to not damage the top of the mandrel hanger with the end of the drill pipe. It is recommended that the drill pipe be centralized to the hanger inner diameter, as closely as possible, when entering the hanger.

7. Carefully lower the bushing over the drill pipe and set it on top of floor slips.
8. Make up the landing joint/running tool assembly to the drill pipe suspended in floor slips.
9. Carefully pick up the pack-off bushing, thread the bushing into the running tool, then rotate the bushing approximately two turns counterclockwise (to the left), coming to a positive stop.

10. Lower the assembly through the BOP Stack and the WFT-SB spool assembly until the pack-off bushing lands on the casing hanger.



11. Verify, through inspection port that the pack-off bushing has landed properly after:
  - ensuring well is stable and no pressure buildup or mud flow is occurring.
  - drain BOP Stack through Casing Head side outlet valves.
  - remove Pipe Plug (1"-NPT) from Casing Head flange port marked "Inspection Port".
  - Check, to ensure, bottom of Lockscrew relief groove (painted white) on Support Bushing is at bottom of inspection port.
  - Reinstall Pipe Plug and tighten securely.
12. Fully run in all Casing Head Lockscrews (lower flange), in an alternating cross pattern.
13. Using two chain tongs, 180° apart, rotate Landing Joint/Running Tool approximately 2 turns clockwise (to the

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 11 of 24
		December 2014	December 2014	December 2014	

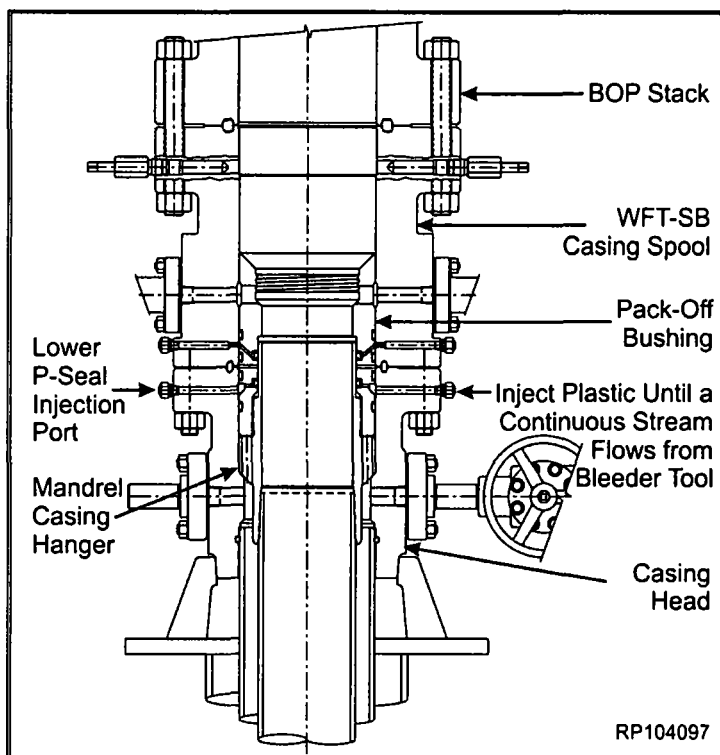
right), coming to a stop and carefully lift tool to Drill Floor, set aside.

### NOTE

If the Contingency Pack-Off Bushing is being installed, it is now necessary to make up the Speed Head Casing Head/Casing Spool connection. Tighten all studs in an alternating cross pattern until the flange bolting is fully made up.

#### Energizing the P-Seals


1. Locate the two lower injection fittings ("INJ"), located 180 degrees apart on the casing head. Remove the dust cap from one fitting and remove the second fitting entirely.
2. Attach a bleeder tool to the injection fitting without the dust cap, in the casing head. Open the bleeder tool.
3. Attach a plastic injection tool to the open port and inject plastic packing into the port until a continuous stream flows from the bleeder tool. Close the bleeder tool.
4. Remove the injection tool. Reinstall the injection fitting into the open port and remove the dust cap. Reattach the injection tool.
5. Continue injecting plastic packing to **5,000 psi. or to 80% of casing collapse pressure, whichever is less.**



### NOTE

The strength of a mandrel casing hanger slick neck is equivalent to P110 Grade casing with the same weight as run in the casing string.

6. Hold and monitor pressure for 15 minutes or as required by the drilling supervisor.
7. If pressure drops, the plastic packing has not filled the seal area completely. Open the bleeder tool, bleed off the pressure and repeat Steps 5 and 6, until pressure is stabilized.
8. Remove the plastic injection tool and bleeder tool. Reinstall the dust caps on both injection fittings.
9. Repeat Steps 1 thru 8 to pack off and energize the upper P-Seal.

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 12 of 24
		December 2014	December 2014	December 2014	



## WFT Split Bowl (SB) Wellhead System (Continued)

10. Locate the "SEAL TEST" fitting, slightly below and 90 degrees from the injection fittings. Remove the dust cap from this fitting.
11. Attach a test pump to the fitting.
12. Pump clean test fluid between the P-Seals until a test pressure of **5,000 psi** or **80% of casing collapse pressure** is attained, whichever is lower.

### **WARNING**

Do NOT exceed 80% of casing collapse pressure when a slip type casing hanger and contingency pack-off bushing are utilized.

13. Hold test pressure for **15 minutes** or as required by the drilling supervisor.
14. If pressure drops, a leak has developed. Take the appropriate action per the following table:

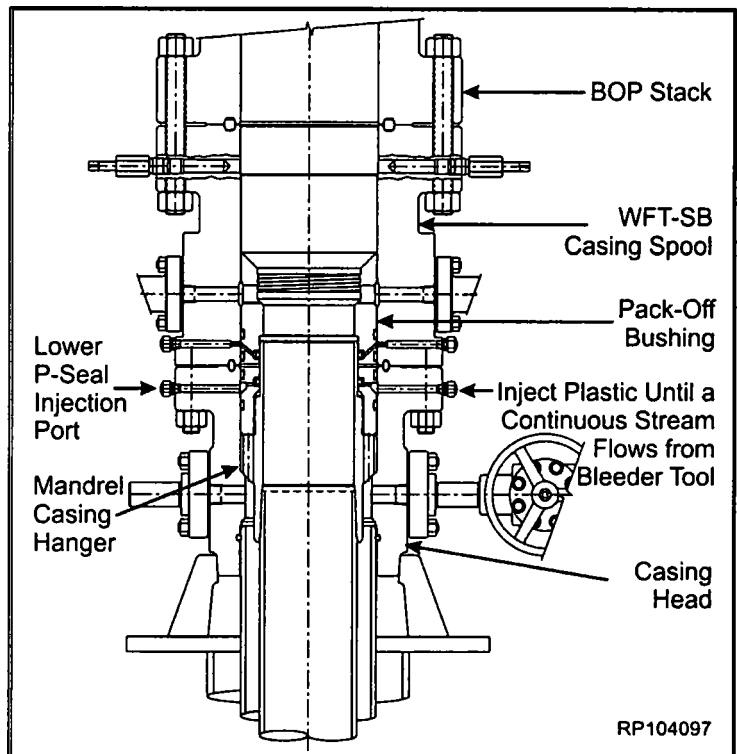
Leak Location	Cause	Action
Into the bore of the casing head	Upper P-seal leaking	Bleed off pressure and re-inject plastic packing into leaking upper P-seal port.
Around the casing	Lower P-Seal leaking	Bleed off pressure and re-inject plastic packing into lower P-seal port.


15. Repeat Steps 12 thru 14 until a satisfactory test is achieved.
16. Once a satisfactory test is achieved, carefully bleed off pressure and remove Test Pump.
17. Attach the bleeder tool to the test port fitting and open the tool to vent any remaining trapped pressure.

### **CAUTION**

Always direct the bleeder tool port away from people and property.

18. Remove the bleeder tool and reinstall dust cap in Test Port Fitting.



 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 13 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

### Retesting the BOP Stack

1. Examine the Test Plug/Running Tool. Verify the following:

- Elastomer seals are intact and in good condition.
- Drill pipe threads are clean and in good condition.

#### NOTE

Immediately after testing the support bushing seals and periodically during conditioning of the hole prior to running tubing, the BOP stack (flanged connections and rams) must be tested.

2. Orient the test plug with elastomer down/ACME threads up. Make up a joint of drill pipe to the test plug.

#### NOTE

Remove the pipe plug from the weep port if pressure is to be supplied through the drill pipe.

#### CAUTION

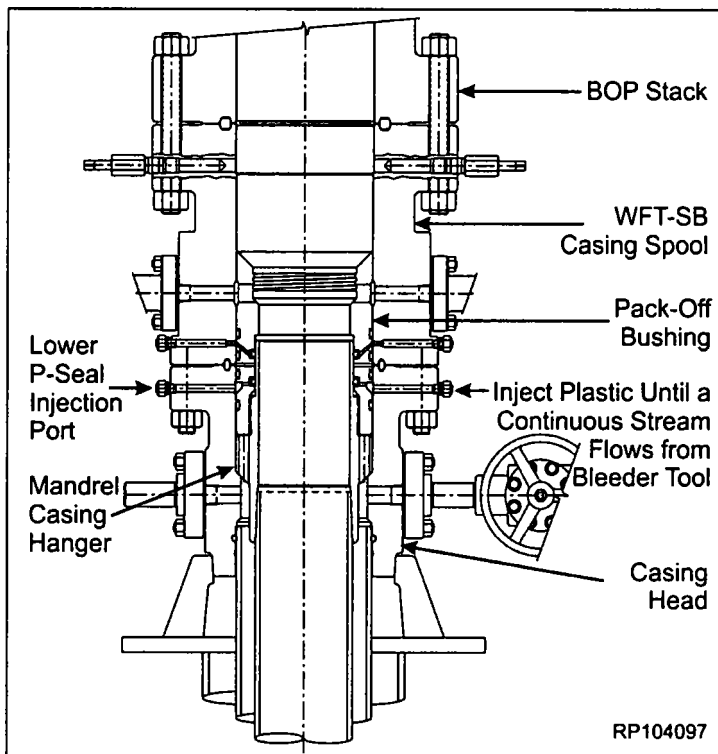
Make sure the elastomer is down and ACME threads are up when testing.

3. Fully retract all lockscrews in the upper WFT-SB Spool Assembly.


#### WARNING

Do NOT retract the lockscrews located in the casing head (lower flange). Doing so could allow the pack-off support bushing to rise out of position.

4. Lubricate the test plug elastomer seal with light oil or grease.



5. Lower the test plug through the BOP stack into the WFT-SB spool assembly until it lands on top of the pack-off bushing.
6. Open the upper WFT-SB casing spool side outlet valves. Monitor for any leakage past the test plug seal.
7. Close the BOP rams on the drill pipe and test to **10,000 psi or as required by the drilling supervisor.**
8. After a satisfactory test is achieved, release all pressure and open the rams.
9. Remove as much fluid from the BOP stack as possible.
10. Retrieve the test plug assembly slowly to avoid damage to the seal.
11. Close all outlet valves on the WFT-SB casing head/spool assembly.

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 14 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

### Running and Retrieving the Short Bowl Protector

#### NOTE

Always use a bowl protector while drilling to protect the wellhead load shoulders from damage by the drill bit or rotating drill pipe. The bowl protector must be retrieved prior to running the casing string!

#### Running the Bowl Protector Prior to Drilling

1. Examine the short bowl protector. Verify the following:
  - Bore drift is correct size, is clean, in good condition, and free of debris.
  - Threads are correct size and type.
  - Threads are clean and in good condition.
2. Orient the bowl protector running tool with ACME threads down.

#### NOTE

The running tool is the same tool used for handling the long bowl protector.

#### CAUTION

Make sure that the left hand (LH) ACME threads are down prior to engaging the bowl protector running tool into the short bowl protector.

3. Make-up a drill pipe joint to the running tool.
4. Thread the running tool into the short bowl protector, rotating two turns counterclockwise (to the left).
5. Verify that all upper lockscrews in the WFT-SB spool assembly are fully retracted. Slowly lower the running

tool/bowl protector assembly through the BOP stack into the WFT-SB spool assembly until it lands on top of the pack-off bushing.

#### WARNING

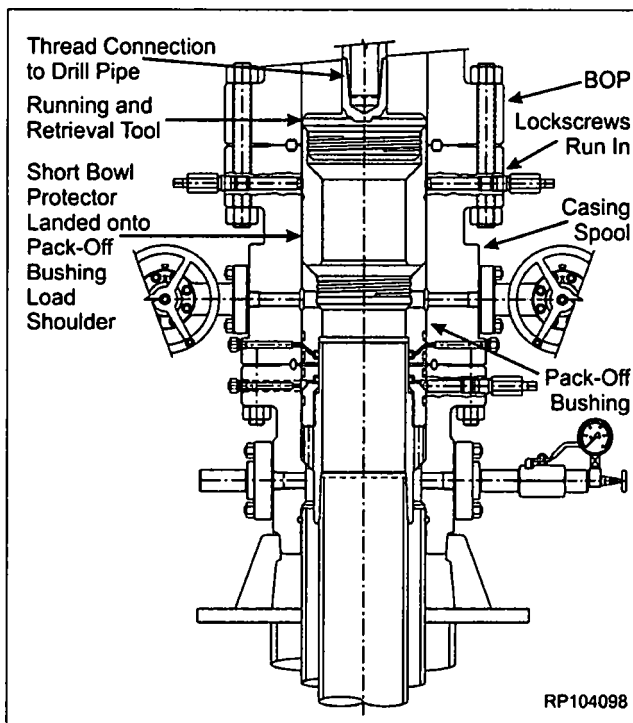
Do NOT retract the lower lockscrews located in the WFT-SB casing head, as this could allow the pack-off bushing to rise out of position.


6. On the upper WFT-SB spool assembly, run in two lockscrews ("snug" tight ONLY), 180 degrees apart, to hold the bowl protector in place.

#### WARNING

Do NOT over tighten the lockscrews, as this will cause damage to both the bowl protector and lockscrews.

7. Remove the running tool from the bowl protector, by rotating the drill pipe clockwise two turns while lifting straight up.
8. Drill out and prepare to the production casing string per the drilling supervisor's instructions.



 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		December 2014	December 2014	December 2014	Page 15 of 24

## WFT Split Bowl (SB) Wellhead System (Continued)

### Retrieval of the Short Bowl Protector After Drilling

1. Make up the retrieval tool to the drill pipe with ACME threads down.
2. Slowly lower the retrieval tool into the bowl protector.
3. Rotate the retrieval tool counterclockwise, two turns, to engage with the bowl protector ACME threads.
4. Fully retract both lockscrews on the casing spool (upper flange), and retrieve the bowl protector.
5. Remove the bowl protector and retrieval tool from the drill string.

### Running the Production Casing

1. Run the production casing to necessary depth and cement as required.

#### NOTE

There are two methods for installing WFT-22 Slip Type Casing Hangers:

- Under the BOP stack.
- Through the BOP stack.

### Installation of the Slip-Type Casing Hanger Under the BOP Stack

1. Drain the casing head through the uppermost side outlet valve.
2. Lift and suspend the BOP stack above the WFT-SB spool assembly to a minimum of 18 inches.
3. Wash out the WFT-SB casing head/spool assembly as required.
4. Confirm that ONLY the lockscrews in the casing spool (upper flange) are fully retracted.

5. Examine the WFT-22 slip-type casing hanger. Verify the following:

- Slip segments are clean and undamaged.
- All screws are in place.
- Packing element is clean and undamaged.

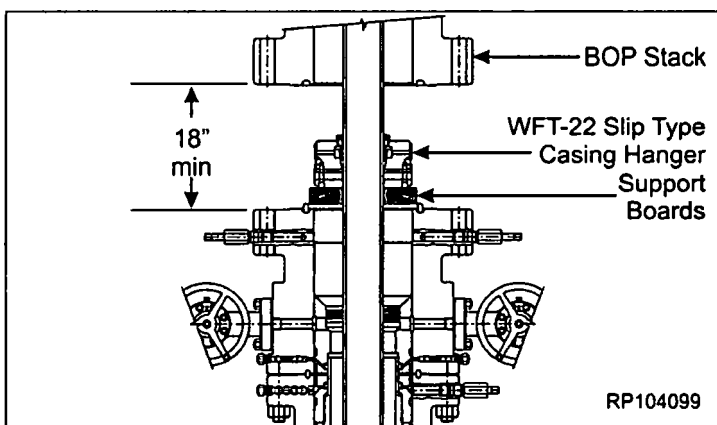
#### CAUTION


The packing element should not protrude past the casing hanger outer diameter. If the packing element does extend past the outer diameter, loosen the cap screws in the bottom of the hanger.

6. Place two boards across the casing spool face, against the casing, to support the hanger.
7. Disengage the spring loaded latch, open the hanger and wrap the hanger around the casing, allowing the support boards to carry weight.
8. Re-engage the casing hanger spring loaded latch.
9. Remove the slip retaining cap screws from the outer diameter of the hanger body, allowing the slip segments to settle around the casing.
10. Supporting the weight of the casing hanger, remove the support boards and lower the hanger into the WFT-SB casing head/spool assembly until it lands on the pack-off bushing load shoulder.

#### CAUTION

Do NOT drop the hanger; lower it carefully.



 5-3-GL-GL-WES-00XXX	Field Service Manual	Prepared By:	Reviewed By:	Approved By:	SM-13-1
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	Rev WIP
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 16 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

### Installation of the Slip-Type Casing Hanger through the BOP Stack

1. Drain the WFT-SB casing head/spool assembly and BOP stack through the side outlet valves on the spool assembly.
2. Wash out the wellhead assembly until clean returns are seen.
3. Examine the slip type casing hanger. Verify the following:
  - slip segments are clean and undamaged
  - all screws are in place
  - Packing Element is clean and undamaged.

### **CAUTION**

The packing element should not protrude past the casing hanger outer diameter. If the packing element does extend past the outer diameter, loosen the cap screws in the bottom of the hanger.

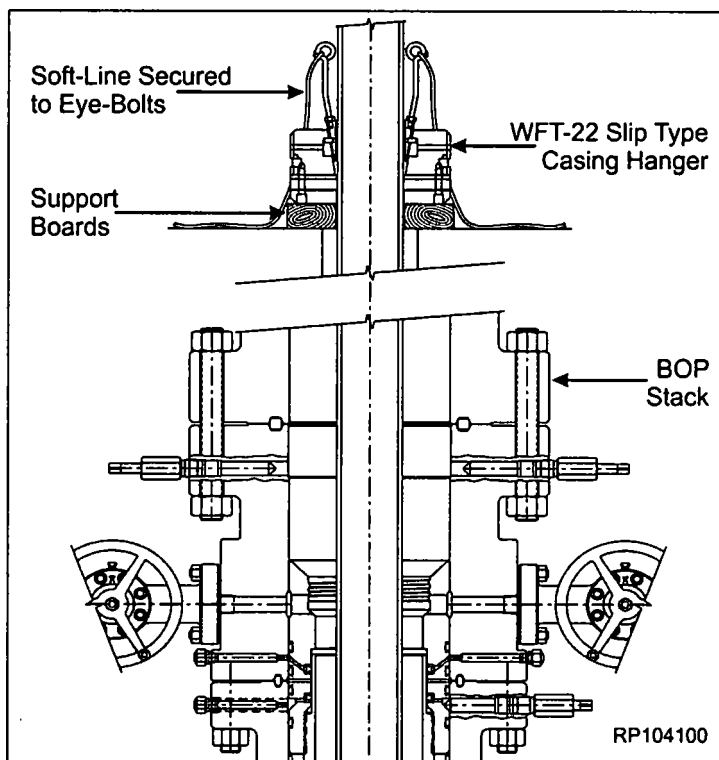
4. Place two boards across the rotary table, against the casing, to support the hanger.
5. Disengage the spring loaded latch, open the hanger and wrap it around the casing, allowing the support boards to carry the weight.
6. Re-engage the casing hanger's spring loaded latch.
7. Measure the distance from the top flange of the WFT-SB casing spool to the drilling rig floor (RKB).
8. Measure out two lengths of soft-line cord (rope) to the same length as the


RKB measurement, and adding an additional 10 feet to each line.

9. Mark the soft line cord at the required length.
10. Install two eyebolts into the tapped holes in the top of the casing hanger slip segments, 180 degrees apart.
11. Securely tie the soft-line cord to the eyebolts.

### **NOTE**

Measuring the soft-line cord and installing the eyebolts into the hanger segments should be done offline.



 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 17 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

12. Remove the slip retaining cap screws from the outer diameter of the hanger body, allowing the slip segments to settle around the casing.
13. Supporting the weight of the casing hanger, remove the support boards and carefully lower the hanger through the BOP stack into the WFT-SB casing head/spool assembly, until it securely lands on the pack-off bushing load shoulder.



Do NOT drop hanger; lower it carefully.

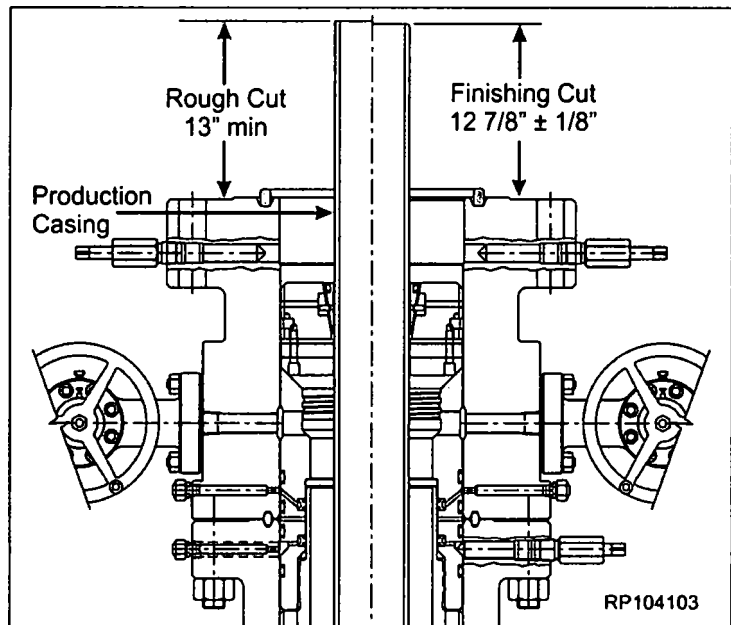
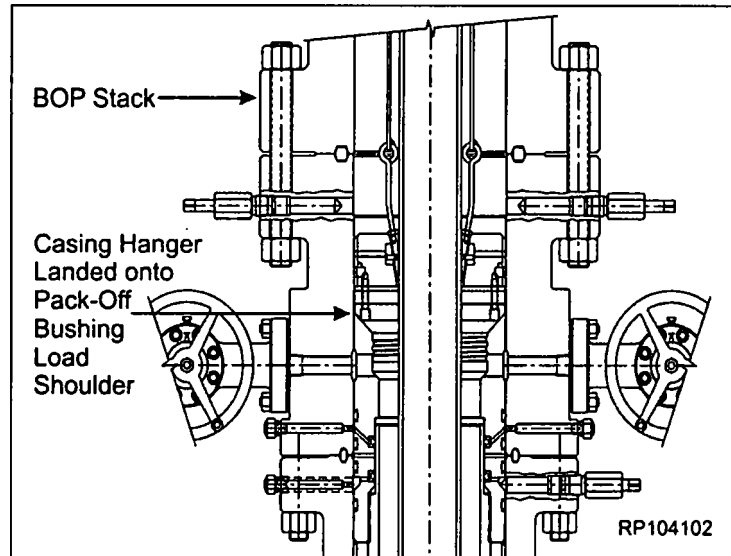
### Hanging off the Production Casing


1. With the casing hanger now landed onto the pack-off bushing load shoulder, pull tension on the casing to the desired hanging weight, and then slack off.

#### NOTE

A sharp decrease on the weight indicator will signify that the hanger has taken weight. If this does not occur, pull tension again and slack off once more.

2. Rough cut casing approximately 16" above top of WFT-SB Spool top flange. Remove excess casing.
3. Carefully remove BOP stack, set aside.
4. Final cut the casing at about  $12\frac{7}{8}" \pm 1/8"$  above the face of the WFT-SB spool, which will allow room for the double studded adapter flange.
5. Grind the casing stub level and bevel the casing outer diameter ( $1/4" \times 1/8"$ ) and inner diameter ( $1/8" \times 45$  degrees).



 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 18 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

### Installation of the Double-Studded Adapter (DSA) Flange

1. Examine the double studded adapter (DSA) Flange. Verify the following:
  - Ring grooves are clean and undamaged.
  - Stud threads are clean and undamaged.
2. Orient the DSA flange with the 10M side down.
3. Thoroughly clean the mating grooves of the DSA flange and the WFT-SB spool assembly. Wipe lightly with oil or grease.

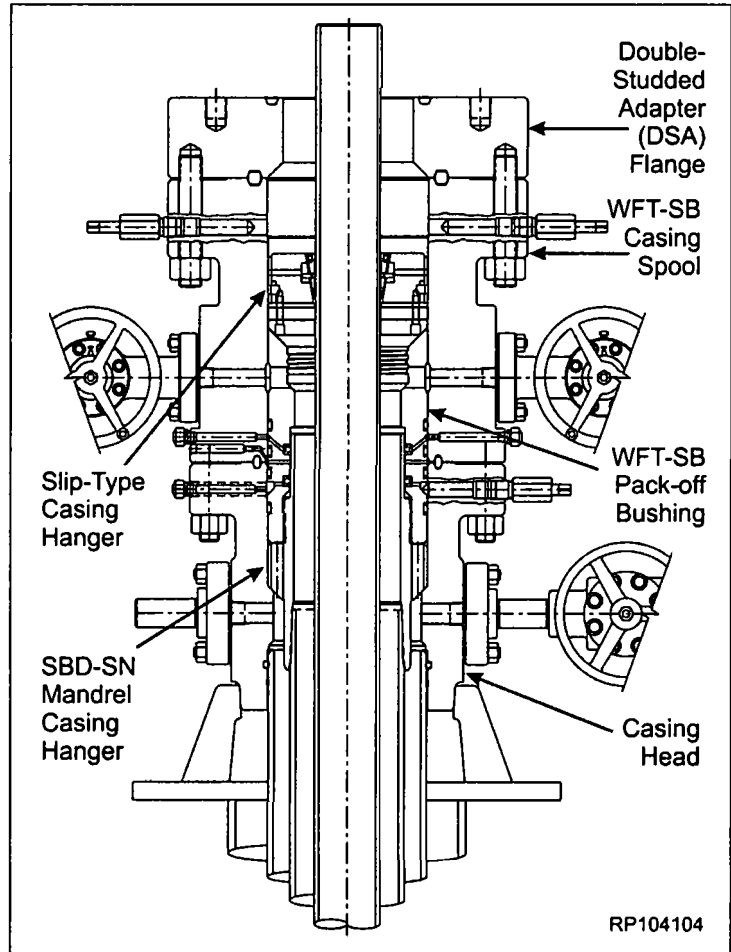
#### **WARNING**

Excessive oil or grease will prevent a positive seal from forming.


4. Install a new appropriately sized ring gasket into the WFT-SB spool assembly groove.
5. Lift, while holding level, and carefully lower the DSA over the production casing stub until it lands on the ring gasket.
6. Make-up the flange connection with appropriate nuts, tightening in alternate cross pattern, as required by API 6A.
7. Fill the void area in the DSA around the production casing with a light weight oil.
8. Continue filling with a light weight oil to the top of the DSA.

#### **WARNING**

Do NOT allow oil to run into the ring groove. This may prevent a positive seal from forming.



RP104104

 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 19 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

### Installation and Testing of the Tubing Spool Assembly

#### Installation of the TCM Tubing Spool Assembly

1. Examine the tubing spool assembly. Verify the following:
  - bore is clean and free of debris
  - ring grooves and seals are clean and undamaged
  - PE-seal assembly is properly installed, clean and undamaged.
2. Thoroughly clean the mating ring grooves of the WFT-TCM Tubing Spool and WFT-SB Casing Spool.
3. Lightly lubricate the inner diameter of the PE-seal and outer diameter of the casing stub with oil or grease.

#### **WARNING**

Excessive oil or grease will prevent a positive seal from forming.

4. Install a new appropriately sized ring gasket into the WFT-SB casing spool assembly groove.
5. Orient the tubing spool assembly as required and carefully lower it over the casing stub, until it lands on the ring gasket.
6. Make up the flange connection with the appropriate studs and nuts, tightening in an alternating cross pattern, as required by API 6A.

#### Testing the Secondary Seal and Flange Connection Test

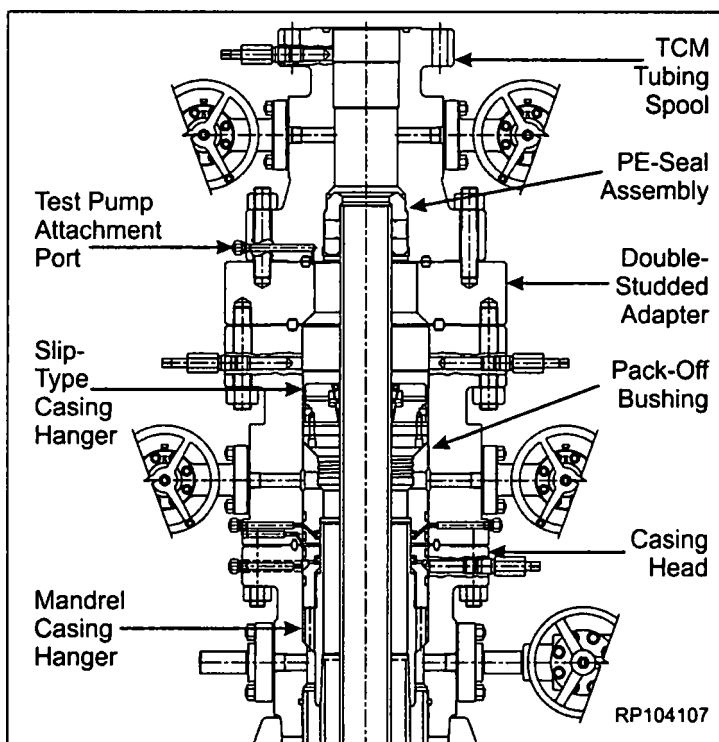
1. Locate the test port fitting on the OD of the tubing spool lower flange. Remove the dust cap from the fitting.
2. Attach a test pump to the test port fitting.


3. Pump clean test fluid into the void area between the flanges until a test pressure of **10,000 psi or 80% of casing collapse pressure is attained**, whichever is lower.
4. Hold and monitor pressure for 15 minutes or as required by the drilling supervisor.
5. Once a satisfactory test is achieved, carefully bleed off pressure and remove the test pump
6. Attach a bleeder tool to the test port fitting and open the tool to vent any remaining trapped pressure.

#### **CAUTION**

Always direct the bleeder tool port away from people and property.

7. Remove the bleeder tool and reinstall the dust cap on the test port fitting.
8. Install a new appropriately sized ring gasket into the tubing spool groove.



 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 20 of 24
		December 2014	December 2014	December 2014	



## WFT Split Bowl (SB) Wellhead System (Continued)

### Testing the BOP

#### NOTE

Immediately after the make-up of the BOP Stack and periodically during drilling of hole for the next string, the BOP stack (flanged connections and rams) must be tested.

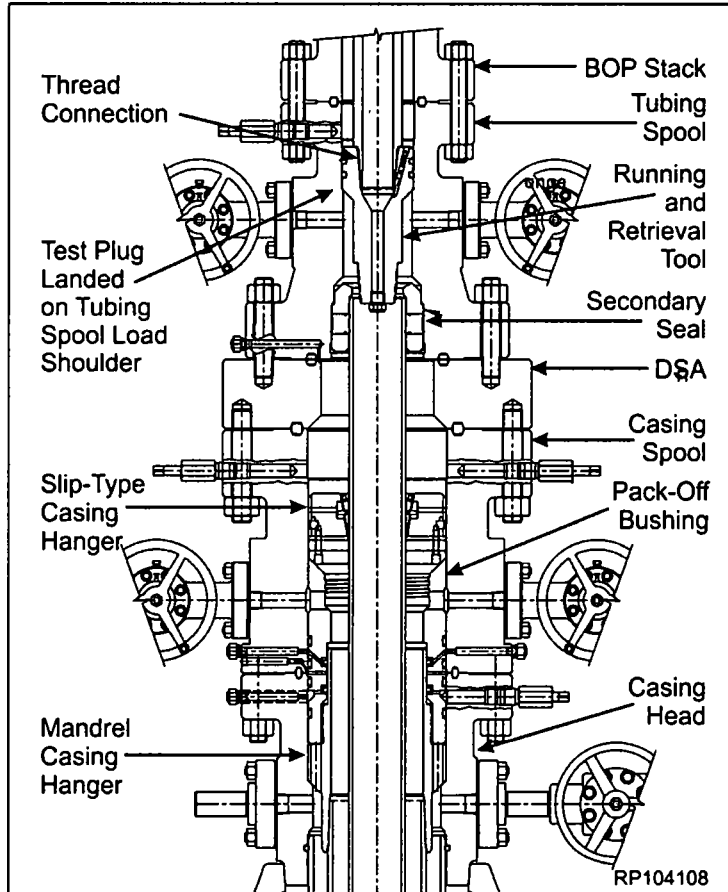
1. Examine the test plug. Verify that:
  - O-ring seals and plugs are properly installed, clean and undamaged.
  - All threads are clean and undamaged.
2. Orient the test plug with O-ring seals up and drill pipe pin connection down.
3. Make up a joint of drill pipe to the top of the test plug.


#### NOTE

If pressure is to be supplied through the drill pipe, the pipe plug should be removed from the weep port.

4. Fully retract all lockscrews on the WFT-TCM tubing spool assembly.
5. Open the side outlet valves on the tubing spool.
6. Wipe the test plug O-ring seals with a light oil or grease.
7. Lower the test plug through the BOP until it lands on the tubing spool load shoulder.
8. Close the BOP rams on the drill pipe and test to **10,000 psi maximum**.
9. Monitor the open outlets for signs of leakage past the test plug.

10. Once a satisfactory test is achieved, release pressure and open the rams.
11. Close the side outlet valves.
12. Remove as much fluid from the BOP stack as possible.
13. Slowly retrieve the test plug, avoiding damage to the seals.
14. Repeat this procedure, as required, during drilling or conditioning of the hole.



 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 21 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

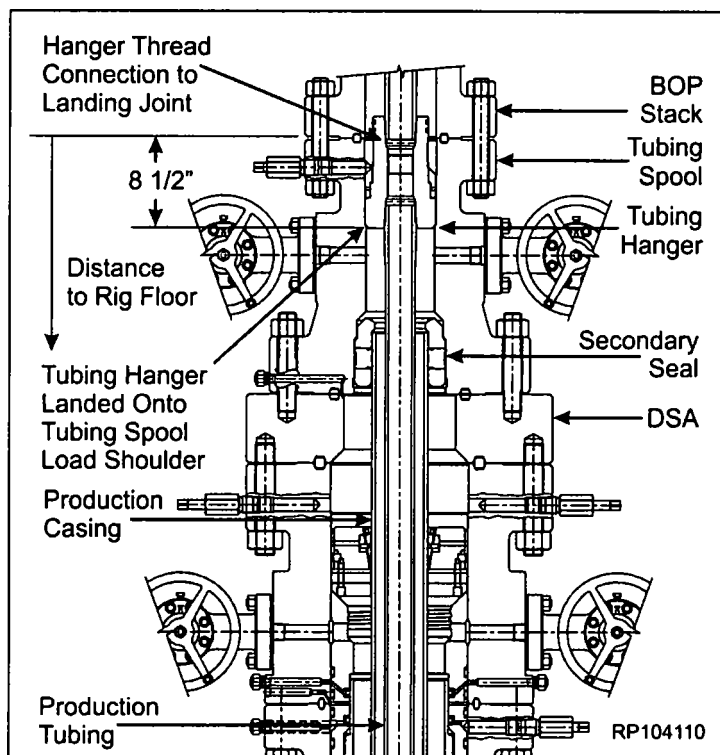
### Hanging off the Production Tubing String


1. Run the production tubing and space out appropriately for the tubing hanger.
2. Examine the TC1AEN Tubing Hanger. Verify the following;
  - Packing element is clean and undamaged.
  - S-seals are properly installed.
  - S-seals are clean and undamaged.
  - All threads are clean and undamaged.
3. Make-up a short handling joint to the top of the tubing hanger.
4. Pick up the tubing hanger and make it up to the tubing string, tightening the connection to the thread manufacturer's recommended optimum torque value.
5. Remove the short handling joint from the top of the hanger. Make up the landing joint to the top of the tubing hanger, tightening the connection to the thread manufacturer's recommended minimum torque values.
6. Ensure that all tubing spool lockscrews are fully retracted from the bore and open side outlet valves. Drain the BOP stack.

#### NOTE

The side outlet valves should remain open while landing the tubing hanger.

7. Calculate the distance from the tubing spool load shoulder to the rig floor. Measure from the face of the tubing spool.
8. Carefully lower the tubing hanger into the well, tallying the tubing every five feet, until the tubing hanger lands securely on the tubing spool load shoulder.
9. Run in all tubing spool lockscrews, in an alternating cross pattern, to 300 ft-lbs, in 75 ft-lb increments.
10. Remove the landing joint from the tubing hanger, and set it aside.



 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 22 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

11. Install the Type H Back Pressure Valve, carefully lowering the BPV through the BOP stack into the tubing hanger. Rotate the BPV counterclockwise (to the left) until it bottoms out in the tubing hanger BPV prep. Continue rotating counterclockwise, approximately 7 turns, to retrieve the running tool.
12. With the well safe and under control, the BOP stack may be removed.

### Installation and Testing of the Production Tree

#### Installation

1. Examine the production tree assembly. Verify the following:
  - Bore is clean and free of debris.
  - All valves are in the fully open position.
  - All threads and seal areas are clean and undamaged.
  - All fittings, nuts and handwheels are intact and undamaged.
2. Thoroughly clean all exposed portions of the tubing hanger, tubing head adapter flange and bottom prep of the tubing head adapter.
3. Thoroughly clean mating ring grooves of the tubing head adapter flange and WFT-TCM tubing spool.
4. Lightly lubricate the tubing hanger neck outer diameter and tubing head adapter flange bottom prep with oil or grease.



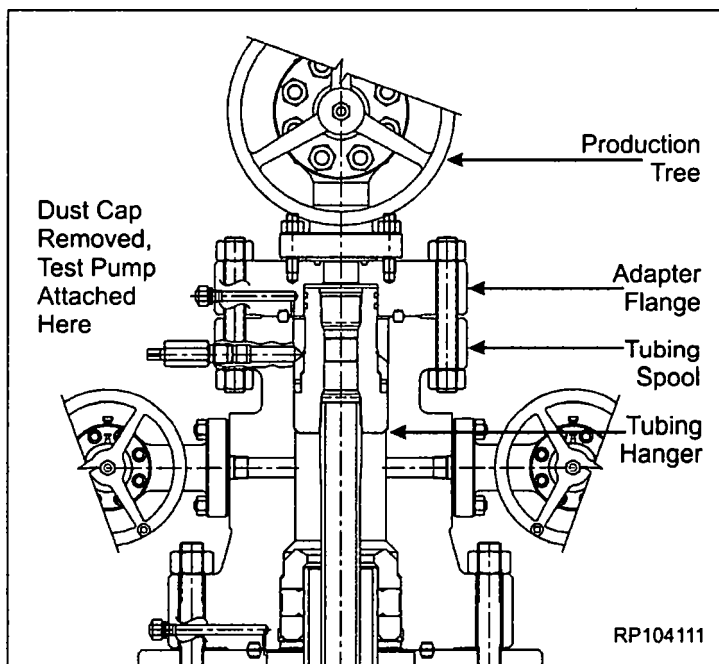
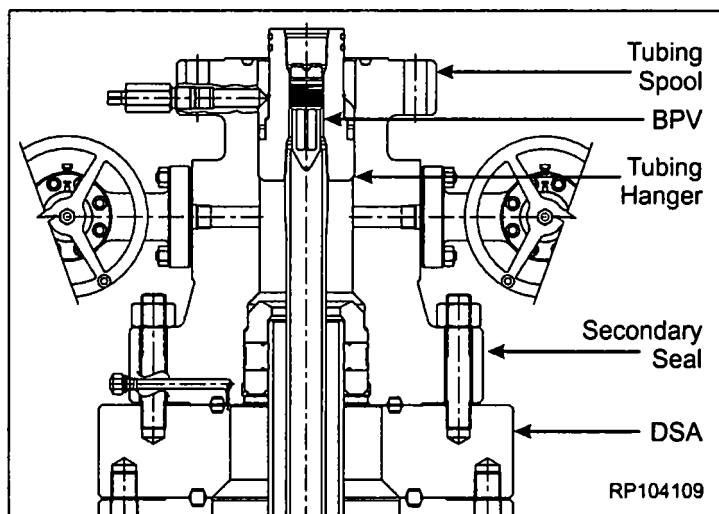
**Excessive oil or grease will prevent a positive seal from forming.**


5. Install a new appropriately sized ring gasket into the WFT-TCM tubing spool groove.

6. Fill the void area around the hanger with hydraulic fluid, to the top of the tubing spool assembly.



**Do NOT overfill the void area, allowing oil to run into the ring groove. This may prevent a positive seal from forming.**



 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 23 of 24
		December 2014	December 2014	December 2014	

## WFT Split Bowl (SB) Wellhead System (Continued)

7. Align and level the production tree above the tubing hanger and carefully lower it over the tubing hanger neck, landing it on the ring gasket.

### **WARNING**

Do NOT damage the hanger neck seals, as this will impair their sealing ability.

8. Make up the connection using the appropriate studs and nuts, and tightening in an alternating cross pattern, as required by API 6A.

### Testing the Production Tree Connection

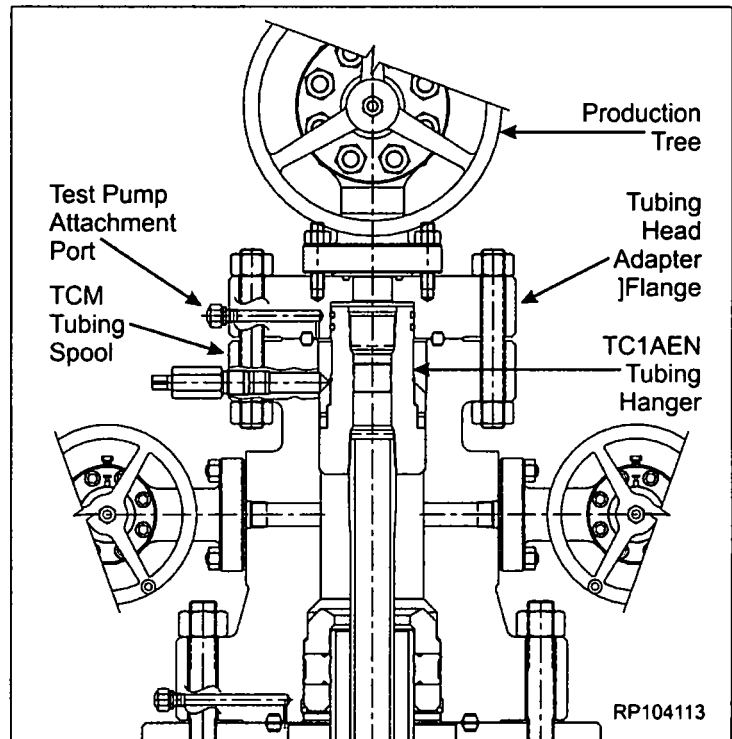
1. Locate the test port fitting on the outer diameter of the tubing head adapter flange. Remove the dust cap from the fitting.
2. Attach a test pump to test port fitting, and open the pump.
3. Pump clean test fluid into void area between flanges, test to 10,000 psi maximum.
4. Hold and monitor pressure for **15 minutes or as required by the production supervisor**.
5. Once a satisfactory test is achieved, carefully bleed off test pressure and remove the test pump.
6. Attach a bleeder tool to the test port fitting, and open the tool to vent any remaining trapped pressure.


### **CAUTION**

Always direct the bleeder tool away from people and property.

7. Remove the bleeder tool and reinstall the dust cap on the test port fitting.

8. Remove the type 'H' back pressure valve (BPV) through the production tree.
9. Ensure that the well is safe and secure by closing all gate valves.



 <b>Weatherford</b> 5-3-GL-GL-WES-00XXX	<b>Field Service Manual</b>	Prepared By:	Reviewed By:	Approved By:	<b>SM-13-1</b>
		<i>Marion Robertson</i>	Brad Franks	Manual Zaragoza	<b>Rev WIP</b>
		Marion Robertson	Brad Franks	Manual Zaragoza	Page 24 of 24
		December 2014	December 2014	December 2014	



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## SUPO Data Report

05/09/2019

APD ID: 10400029708

Submission Date: 04/23/2018

Highlighted data  
reflects the most  
recent changes

Operator Name: BTA OIL PRODUCERS LLC

Well Name: VACA DRAW 9418 10 FED

Well Number: 13H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

### Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

Vaca\_Draw\_9418\_10\_Fed\_13H\_Vicinity\_Map\_20180423085559.pdf

Existing Road Purpose: ACCESS,FLUID TRANSPORT

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

### Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

Vaca\_Draw\_9418\_10\_Fed\_13H\_Topographical\_\_Access\_Rd\_20180423085616.pdf

New road type: RESOURCE

Length: 2096

Feet

Width (ft.): 25

Max slope (%): 2

Max grade (%): 2

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 15

New road access erosion control: Road construction requirements and regular maintenance would alleviate potential impacts to the access road from water erosion damage.

New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

**Access surfacing type:** OTHER

**Access topsoil source:** BOTH

**Access surfacing type description:** Native Caliche

**Access onsite topsoil source depth:** 6

**Offsite topsoil source description:** Material will be obtained from the closest existing caliche pit as designated by the BLM.

**Onsite topsoil removal process:** The top 6 inches of topsoil is pushed off and stockpiled along the side of the location. An approximate 160' X 160' area is used within the proposed well site to remove caliche. Subsoil is removed and stockpiled within the pad site to build the location and road. Then subsoil is pushed back in the hole and caliche is spread accordingly across proposed access road.

**Access other construction information:**

**Access miscellaneous information:**

**Number of access turnouts:**

**Access turnout map:**

### Drainage Control

**New road drainage crossing:** OTHER

**Drainage Control comments:** Proposed access road will be crowned and ditched and constructed of 6 inch rolled and compacted caliche. Water will be diverted where necessary to avoid ponding, maintain good drainage, and to be consistent with local drainage patterns.

**Road Drainage Control Structures (DCS) description:** Any ditches will be at 3:1 slope and 3 feet wide.

**Road Drainage Control Structures (DCS) attachment:**

### Access Additional Attachments

**Additional Attachment(s):**

### Section 3 - Location of Existing Wells

**Existing Wells Map?** YES

**Attach Well map:**

Vaca\_Draw\_9418\_10\_Fed\_13H\_1\_Mile\_Radius\_Map\_20180423092903.pdf

**Existing Wells description:**

### Section 4 - Location of Existing and/or Proposed Production Facilities

**Submit or defer a Proposed Production Facilities plan?** SUBMIT

**Production Facilities description:** If well is productive, we will use the existing well pad for the tank battery and all necessary production facilities. If any plans change in regarding the production facility or other infrastructure, we will submit a sundry notice or right of way (if applicable) prior to installation or construction.

**Production Facilities map:**

Production\_Facility\_20180420101402.pdf

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

## Section 5 - Location and Types of Water Supply

### Water Source Table

**Water source use type:** DUST CONTROL,  
INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE  
CASING

**Describe type:** Sec. 11, T26S, R33E

**Water source type:** OTHER

**Source longitude:**

**Source latitude:**

**Source datum:** NAD83

**Water source permit type:** OTHER

**Source land ownership:** FEDERAL

**Water source transport method:** PIPELINE,TRUCKING

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 100000

**Source volume (acre-feet):** 12.88931

**Source volume (gal):** 4200000

**Water source use type:** DUST CONTROL,  
INTERMEDIATE/PRODUCTION CASING, STIMULATION, SURFACE  
CASING

**Describe type:** Sec. 1, T26S, R33E

**Water source type:** OTHER

**Source longitude:**

**Source latitude:**

**Source datum:** NAD83

**Water source permit type:** OTHER

**Source land ownership:** FEDERAL

**Water source transport method:** PIPELINE,TRUCKING

**Source transportation land ownership:** FEDERAL

**Water source volume (barrels):** 100000

**Source volume (acre-feet):** 12.88931

**Source volume (gal):** 4200000

**Water source and transportation map:**

Vaca\_Draw\_9418\_10\_Fed\_\_\_Water\_Source\_and\_Transportation\_Map\_20180420102134.pdf

**Water source comments:**

**New water well?** NO

### New Water Well Info

**Well latitude:**

**Well Longitude:**

**Well datum:**

**Well target aquifer:**

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

**Est. depth to top of aquifer(ft):**

**Est thickness of aquifer:**

**Aquifer comments:**

**Aquifer documentation:**

**Well depth (ft):**

**Well casing type:**

**Well casing outside diameter (in.):**

**Well casing inside diameter (in.):**

**New water well casing?**

**Used casing source:**

**Drilling method:**

**Drill material:**

**Grout material:**

**Grout depth:**

**Casing length (ft.):**

**Casing top depth (ft.):**

**Well Production type:**

**Completion Method:**

**Water well additional information:**

**State appropriation permit:**

**Additional information attachment:**

### Section 6 - Construction Materials

**Construction Materials description:** Caliche used for construction of the drilling pad and access road will be obtained from the closest existing caliche pit as approved by the BLM or from prevailing deposits found under the location. If there is not sufficient material available, caliche will be purchased from the nearest caliche pit located in Section 1, T25S, R33E Lea County, NM. Alternative location if original location closes will be located in Section 34, T24S, R33E.

**Construction Materials source location attachment:**

### Section 7 - Methods for Handling Waste

**Waste type:** DRILLING

**Waste content description:** Drilling fluids and cuttings.

**Amount of waste:** 3990 barrels

**Waste disposal frequency :** One Time Only

**Safe containment description:** All drilling fluids will be stored safely and disposed of properly.

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

**Disposal type description:**

**Disposal location description:** Trucked to an approved disposal facility.

**Waste type:** SEWAGE

**Waste content description:** Human waste and grey water

**Amount of waste:** 1000 gallons

**Waste disposal frequency :** One Time Only



**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

**Safe containment description:** Waste material will be stored safely and disposed of properly.

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY      **Disposal location ownership:** COMMERCIAL

**Disposal type description:**

**Disposal location description:** Trucked to an approved disposal facility.

**Waste type:** GARBAGE

**Waste content description:** Trash

**Amount of waste:** 500 pounds

**Waste disposal frequency :** One Time Only

**Safe containment description:** Trash produced during drilling and completion operations will be collected in a trash container and disposed of properly.

**Safe containmant attachment:**

**Waste disposal type:** HAUL TO COMMERCIAL FACILITY      **Disposal location ownership:** COMMERCIAL

**Disposal type description:**

**Disposal location description:** Trucked to an approved disposal facility.

### Reserve Pit

**Reserve Pit being used?** NO

**Temporary disposal of produced water into reserve pit?**

**Reserve pit length (ft.)**      **Reserve pit width (ft.)**

**Reserve pit depth (ft.)**      **Reserve pit volume (cu. yd.)**

**Is at least 50% of the reserve pit in cut?**

**Reserve pit liner**

**Reserve pit liner specifications and installation description**

### Cuttings Area

**Cuttings Area being used?** NO

**Are you storing cuttings on location?** NO

**Description of cuttings location**

**Cuttings area length (ft.)**      **Cuttings area width (ft.)**

**Cuttings area depth (ft.)**      **Cuttings area volume (cu. yd.)**

**Is at least 50% of the cuttings area in cut?**

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

**WCuttings area liner**

**Cuttings area liner specifications and installation description**

## Section 8 - Ancillary Facilities

**Are you requesting any Ancillary Facilities?:** NO

**Ancillary Facilities attachment:**

**Comments:** It is possible that a mobile home will be used at the well site during drilling operations.

## Section 9 - Well Site Layout

**Well Site Layout Diagram:**

Vaca\_Draw\_9418\_10\_Fed\_13H\_Well\_Site\_Plan\_20180423085751.pdf

**Comments:** Should the well be successfully completed for production, the original topsoil from the site will be returned to the location. The drill site will be contoured as close as possible to the original state.

## Section 10 - Plans for Surface Reclamation

**Type of disturbance:** New Surface Disturbance

**Multiple Well Pad Name:** VACA DRAW 9418 10 FED

**Multiple Well Pad Number:** 12H-15H

**Recontouring attachment:**

**Drainage/Erosion control construction:** During construction proper erosion control methods will be used to control erosion, runoff and siltation of the surrounding area.

**Drainage/Erosion control reclamation:** Proper erosion control methods will be used on the area to control erosion, runoff and siltation of the surrounding area.

<b>Well pad proposed disturbance (acres):</b> 0	<b>Well pad interim reclamation (acres):</b> 3.07	<b>Well pad long term disturbance (acres):</b> 2.34
<b>Road proposed disturbance (acres):</b> 0	<b>Road interim reclamation (acres):</b> 0.234	<b>Road long term disturbance (acres):</b> 0.234
<b>Powerline proposed disturbance (acres):</b> 0	<b>Powerline interim reclamation (acres):</b> 0	<b>Powerline long term disturbance (acres):</b> 0
<b>Pipeline proposed disturbance (acres):</b> 0	<b>Pipeline interim reclamation (acres):</b> 0	<b>Pipeline long term disturbance (acres):</b> 0
<b>Other proposed disturbance (acres):</b> 0	<b>Other interim reclamation (acres):</b> 0	<b>Other long term disturbance (acres):</b> 0
<b>Total proposed disturbance:</b> 0	<b>Total interim reclamation:</b> 3.304	<b>Total long term disturbance:</b> 2.574

**Disturbance Comments:**

**Reconstruction method:** The areas planned for interim reclamation will then be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be recontoured to the above ratios during

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

interim reclamation.

**Topsoil redistribution:** Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations.

**Soil treatment:** To seed the area, the proper BLM seed mixture, free of noxious weeds, will be used. Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding, dozer tracking, or other imprinting in order to break the soil crust and create seed germination micro-sites.

**Existing Vegetation at the well pad:** The historic climax plant community is a grassland dominated by black grama, dropseeds, and blue stems with sand sage and shinnery oak distributed evenly throughout. Current landscape displays mesquite, shinnery oak, yucca, desert sage, fourwing saltbush, snakeweed, and bunch grasses.

**Existing Vegetation at the well pad attachment:**

**Existing Vegetation Community at the road:** Refer to "Existing Vegetation at the well pad"

**Existing Vegetation Community at the road attachment:**

**Existing Vegetation Community at the pipeline:** Refer to "Existing Vegetation at the well pad"

**Existing Vegetation Community at the pipeline attachment:**

**Existing Vegetation Community at other disturbances:** Refer to "Existing Vegetation at the well pad"

**Existing Vegetation Community at other disturbances attachment:**

**Non native seed used?** NO

**Non native seed description:**

**Seedling transplant description:**

**Will seedlings be transplanted for this project?** NO

**Seedling transplant description attachment:**

**Will seed be harvested for use in site reclamation?** NO

**Seed harvest description:**

**Seed harvest description attachment:**

## Seed Management

### Seed Table

**Seed type:**

**Seed source:**

**Seed name:**

**Source name:**

**Source address:**

**Source phone:**

**Seed cultivar:**

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

**Seed use location:**

**PLS pounds per acre:**

**Proposed seeding season:**

Seed Summary	
Seed Type	Pounds/Acre

**Total pounds/Acre:**

**Seed reclamation attachment:**

**Operator Contact/Responsible Official Contact Info**

**First Name:**

**Last Name:**

**Phone:**

**Email:**

**Seedbed prep:**

**Seed BMP:**

**Seed method:**

**Existing invasive species?** NO

**Existing invasive species treatment description:**

**Existing invasive species treatment attachment:**

**Weed treatment plan description:** No invasive species present. Standard regular maintenance to maintain a clear location and road.

**Weed treatment plan attachment:**

**Monitoring plan description:** Identify areas supporting weeds prior to construction; prevent the introduction and spread of weeds from construction equipment during construction; and contain weed seeds and propagules by preventing segregated topsoil from being spread to adjacent areas. No invasive species present. Standard regular maintenance to maintain a clear location and road.

**Monitoring plan attachment:**

**Success standards:** To maintain all disturbed areas as per Gold Book standards.

**Pit closure description:** N/A

**Pit closure attachment:**

**Section 11 - Surface Ownership**

**Disturbance type:** WELL PAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Disturbance type:** NEW ACCESS ROAD

**Describe:**

**Surface Owner:** BUREAU OF LAND MANAGEMENT

**Other surface owner description:**

**BIA Local Office:**

**BOR Local Office:**

**COE Local Office:**

**DOD Local Office:**

**NPS Local Office:**

**State Local Office:**

**Military Local Office:**

**USFWS Local Office:**

**Other Local Office:**

**USFS Region:**

**USFS Forest/Grassland:**

**USFS Ranger District:**

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

**Section 12 - Other Information**

**Right of Way needed?** NO

**Use APD as ROW?**

**ROW Type(s):**

**ROW Applications**

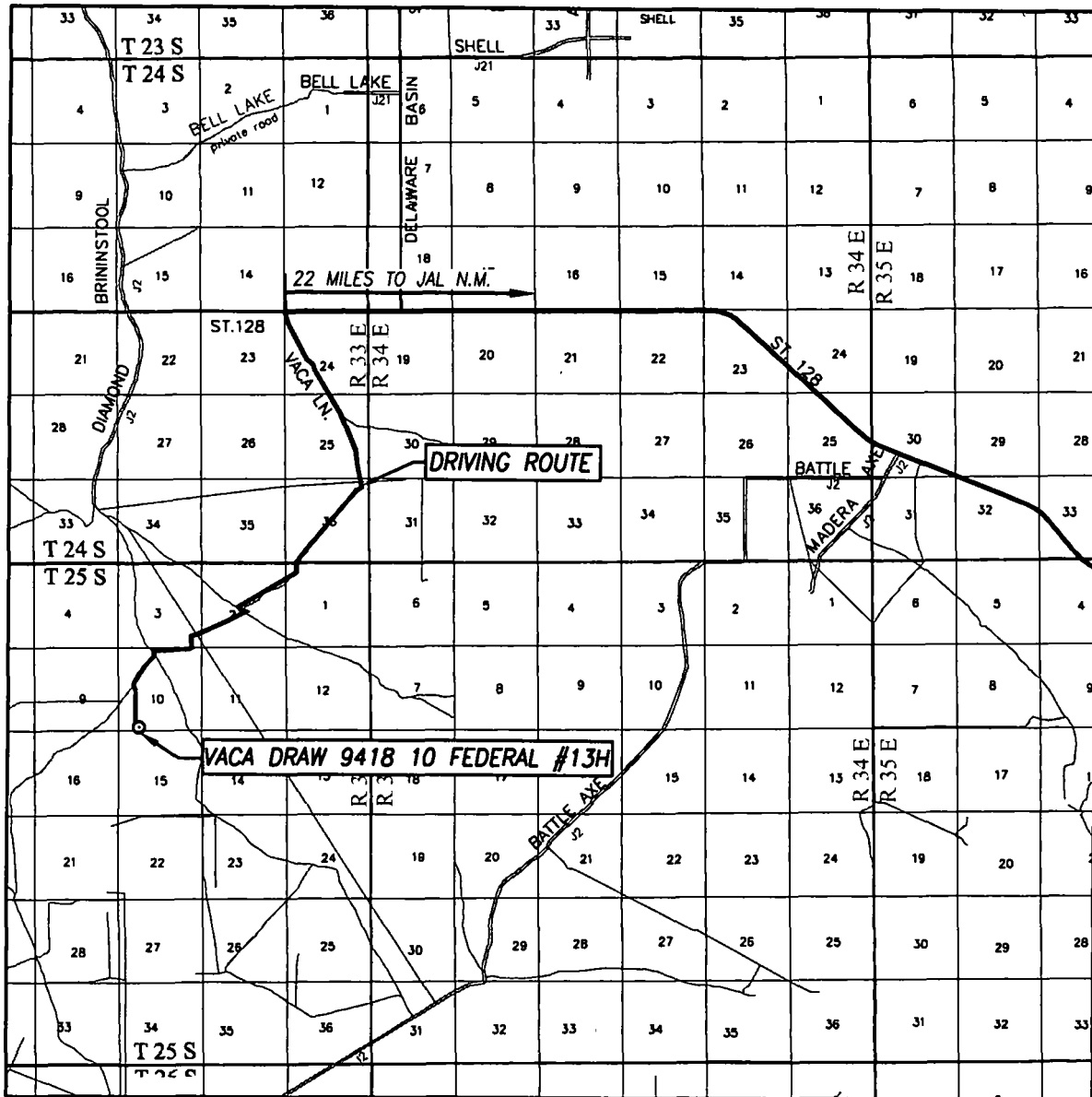
**SUPO Additional Information:**

**Use a previously conducted onsite?** YES

**Previous Onsite information:** Onsite was conducted Thursday, February 15, 2017 by Fernando Banos & Vance Wolf.

**Other SUPO Attachment**

# VICINITY MAP



SCALE: 1" = 2 MILES

DRIVING ROUTE: SEE TOPOGRAPHICAL AND ACCESS ROAD MAP

SEC. 10 TWP. 25-S RGE. 33-E

SURVEY \_\_\_\_\_ N.M.P.M.


COUNTY LEA STATE NEW MEXICO

DESCRIPTION 200' FSL & 1305' FWL

ELEVATION 3389'

OPERATOR BTA OIL PRODUCERS, LLC

LEASE VACA DRAW 9418 10 FEDERAL



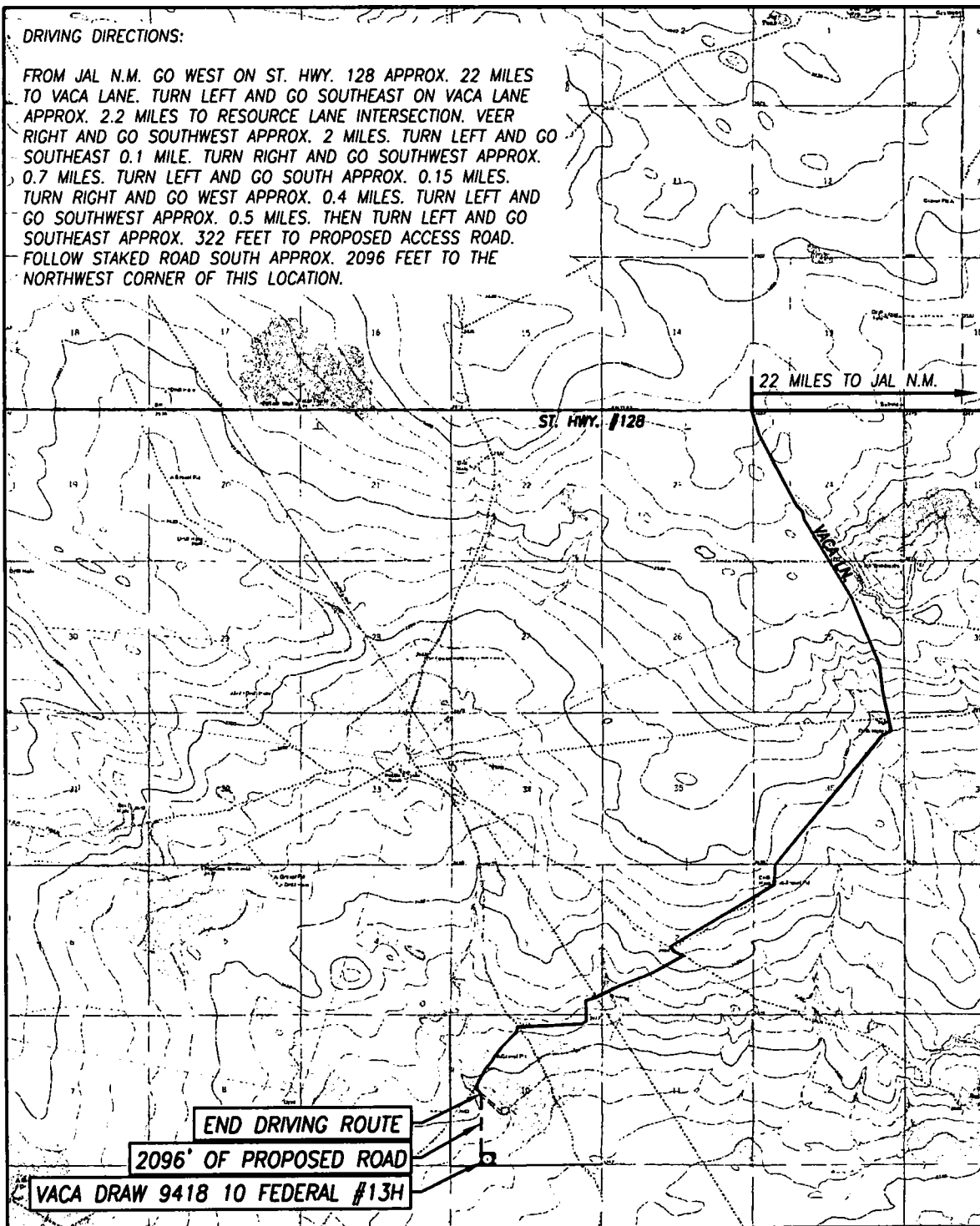
PROVIDING SURVEYING SERVICES  
SINCE 1946

**JOHN WEST SURVEYING COMPANY**  
412 N. DAL PASO HOBBS, N.M. 88240  
(575) 393-3117 [www.jwsc.biz](http://www.jwsc.biz)  
TBPLS# 10021000

# TOPOGRAPHIC AND ACCESS ROAD MAP

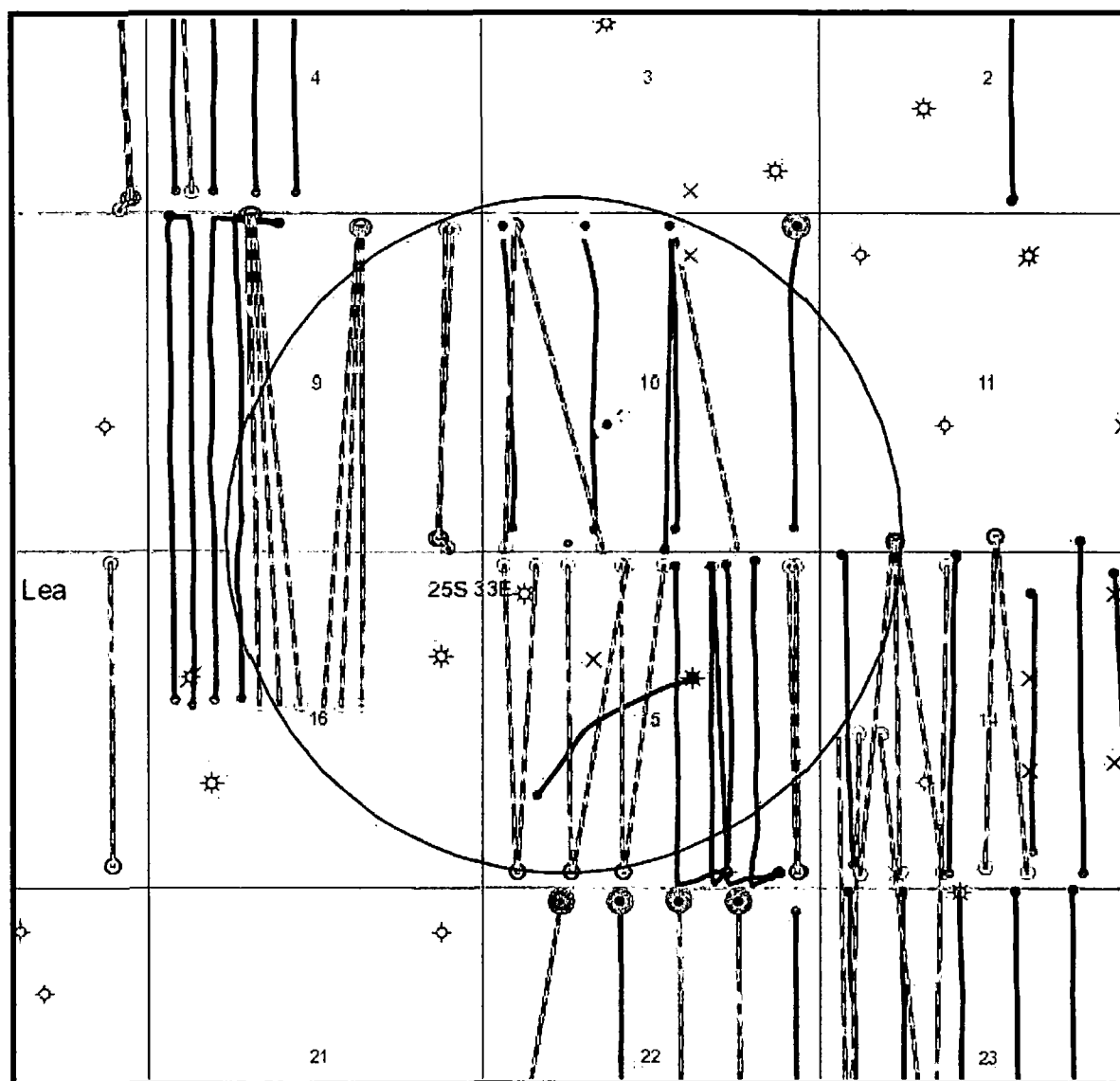
## DRIVING DIRECTIONS:

FROM JAL N.M. GO WEST ON ST. HWY. 128 APPROX. 22 MILES TO VACA LANE. TURN LEFT AND GO SOUTHEAST ON VACA LANE APPROX. 2.2 MILES TO RESOURCE LANE INTERSECTION. VEER RIGHT AND GO SOUTHWEST APPROX. 2 MILES. TURN LEFT AND GO SOUTHEAST 0.1 MILE. TURN RIGHT AND GO SOUTHWEST APPROX. 0.7 MILES. TURN LEFT AND GO SOUTH APPROX. 0.15 MILES. TURN RIGHT AND GO WEST APPROX. 0.4 MILES. TURN LEFT AND GO SOUTHWEST APPROX. 0.5 MILES. THEN TURN LEFT AND GO SOUTHEAST APPROX. 322 FEET TO PROPOSED ACCESS ROAD. FOLLOW STAKED ROAD SOUTH APPROX. 2096 FEET TO THE NORTHWEST CORNER OF THIS LOCATION.





# 1 MILE RADIUS MAP



## LEGEND

- Location (Permit)
- Drilling in Progress
- Oil Well
- Gas Well
- Oil & Gas Well
- Dry w/Oil Shows
- Dry w/Gas Shows
- Dry w/Oil & Gas Shows
- Dry Hole
- Injection
- Suspended
- Plugged Gas Well
- Plugged Oil Well
- Plugged Oil & Gas Well

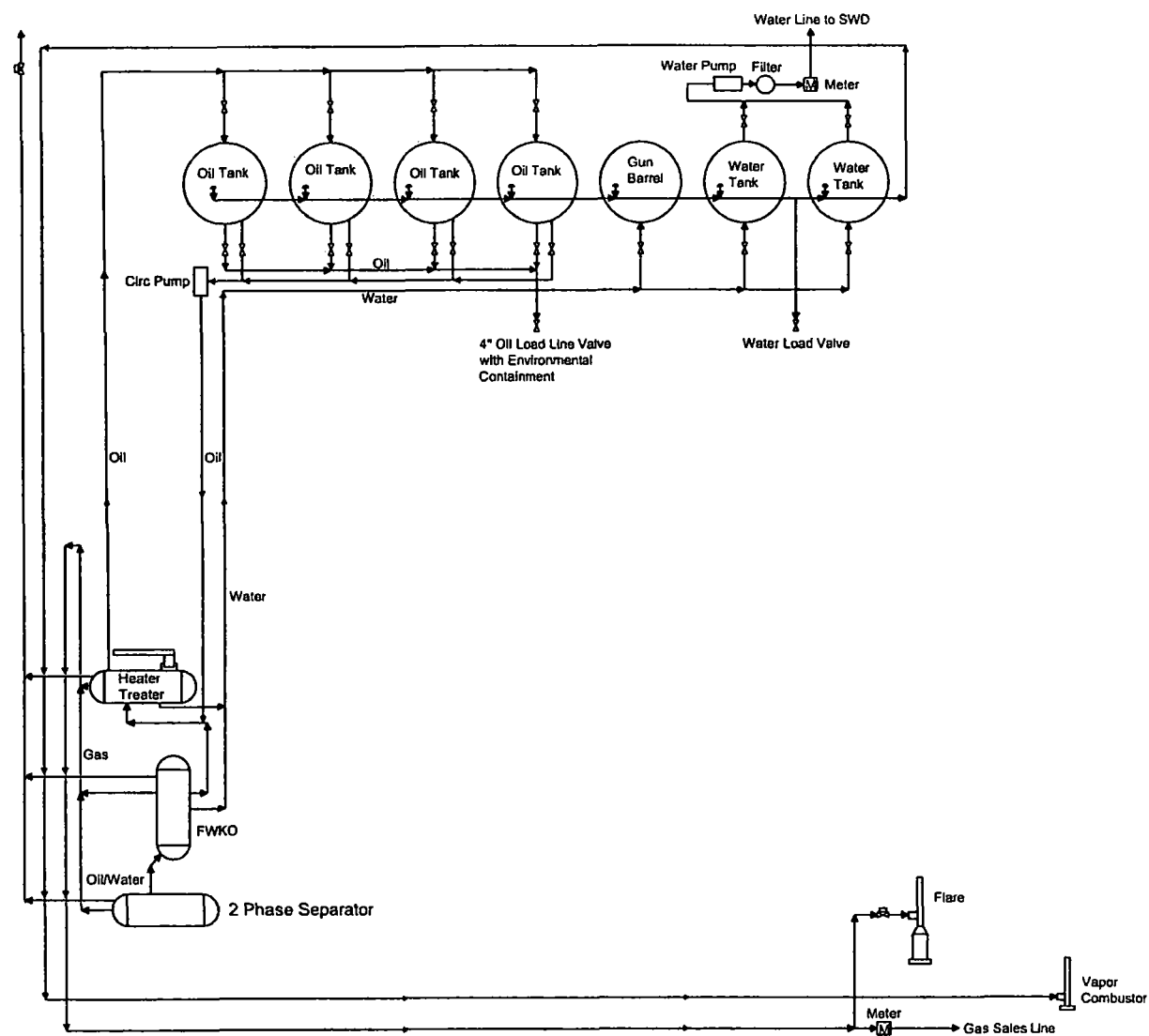
BTA OIL PRODUCERS, LLC  
 VACA DRAW 9418 10 FED #13H  
 220 FSL & 1305 FWL  
 SEC. 10 T25S R33E  
 LEA COUNTY, NEW MEXICO

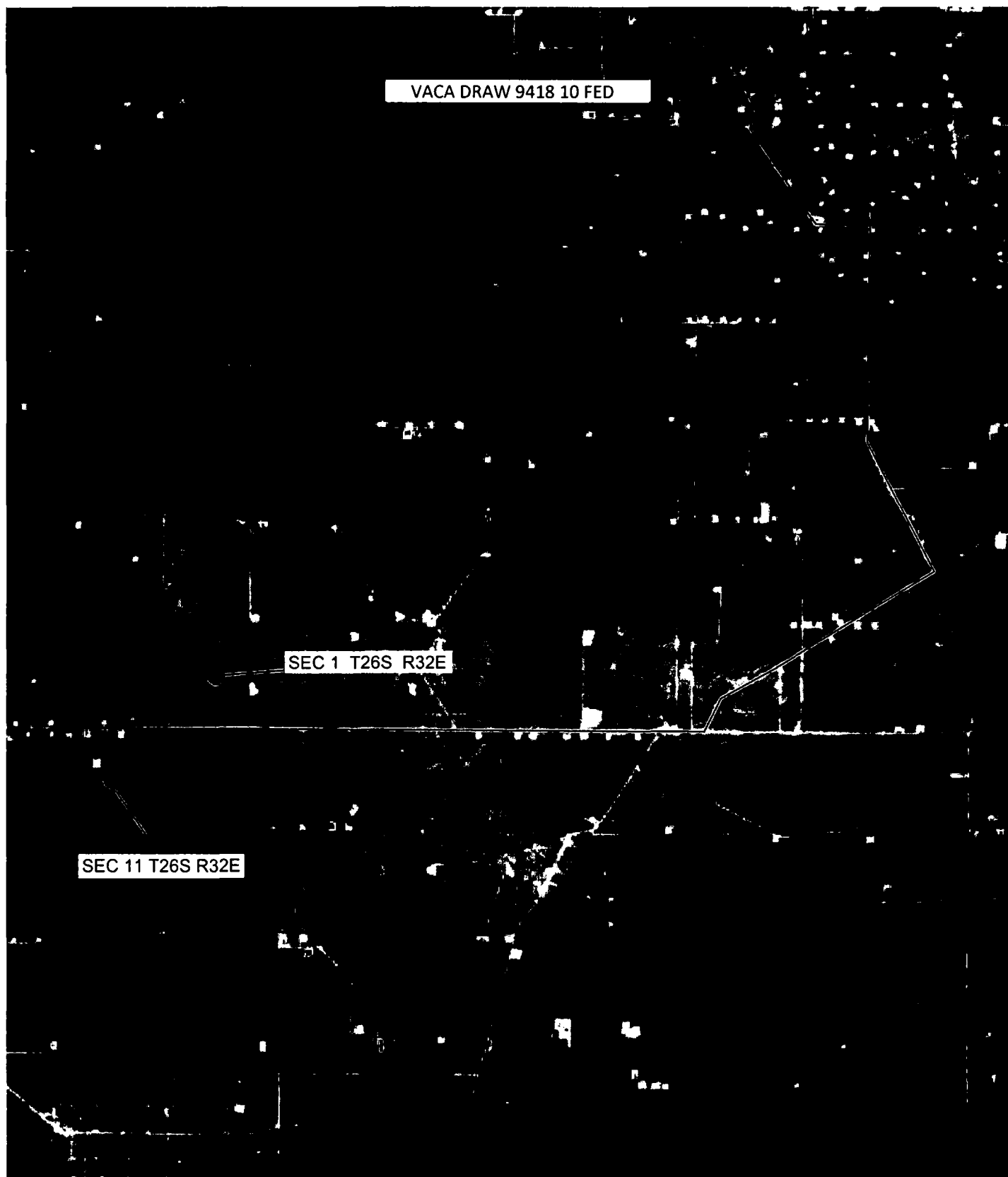


### Wells Within One Mile Radius

API	Lease Name	Well Num	Current Operator	Location	Footage	IP Prod Form Name	Driller Td
30025276230000	OCHOA FEDERAL	1	EOG RESOURCES INCORPORATED	25S 33E 15 C SW NE	1980 FNL 1980 FEL CONGRESS SECTION	MORROW	16335
30025434790000	ANTIETAM 9 FEDERAL COM	703H	EOG RESOURCES INCORPORATED	25S 33E 9 NE NW	164 FNL 2003 FWL CONGRESS SECTION	WOLFCAMP	19824
30025416240000	VACA DRAW 9418 JV-P	5H	BTA OIL PRODUCERS LLC	25S 33E 10 NW NW	190 FNL 330 FWL CONGRESS SECTION	BONE SPRING	13910
30025276230001	OCHOA FEDERAL	1	EOG RESOURCES INCORPORATED	25S 33E 15 C SW NE	1980 FNL 1980 FEL CONGRESS SECTION	WOLFCAMP	16335
30025346530000	VACA DRAW '16' STATE	2	EOG RESOURCES INCORPORATED	25S 33E 16 NW SW	1650 FSL 990 FWL CONGRESS SECTION	WOLFCAMP	14002
30025416230100	VACA DRAW 9418 JV-P	4H	BTA OIL PRODUCERS LLC	25S 33E 10 NE NW	190 FNL 1650 FWL CONGRESS SECTION	BONE SPRING	13918
30025436110000	VACA DRAW 9418 10 FEDERAL	006H	BTA OIL PRODUCERS LLC	25S 33E 10 NW NE	190 FNL 2281 FEL CONGRESS SECTION	BONE SPRING	14478
30025416220000	VACA DRAW 9418 JV-P	3H	BTA OIL PRODUCERS LLC	25S 33E 10 NW NE	190 FNL 2310 FEL CONGRESS SECTION	BONE SPRING	15626
30025336390001	9418 JV-P VACA DRAW	1	BTA OIL PRODUCERS LLC	25S 33E 10 C NE SW	1980 FSL 1980 FWL CONGRESS SECTION	WOLFCAMP	14162
30025399440100	VACA '14' FEDERAL COM	5H	EOG RESOURCES INCORPORATED	25S 33E 14	50 FNL 330 FWL CONGRESS SECTION	BONE SPRING	14092
30025276230002	OCHOA FEDERAL	1	EOG RESOURCES INCORPORATED	25S 33E 15 C SW NE	1980 FNL 1980 FEL CONGRESS SECTION	BONE SPRING	16335
30025276230100	OCHOA FEDERAL	1	EOG RESOURCES INCORPORATED	25S 33E 15 C SW NE	1980 FNL 1980 FEL CONGRESS SECTION	BONE SPRING	15185
30025434800000	ANTIETAM 9 FEDERAL COM	704H	EOG RESOURCES INCORPORATED	25S 33E 9 NE NW	164 FNL 2033 FWL CONGRESS SECTION	WOLFCAMP	19662
30025349090000	VACA DRAW '16' STATE	3	EOG RESOURCES INCORPORATED	25S 33E 16 N2 SE NE	1650 FNL 660 FEL CONGRESS SECTION	WOLFCAMP	14250
30025354450000	VACA DRAW '15' FEDERAL	1	EOG RESOURCES INCORPORATED	25S 33E 15 C NW NW	660 FNL 660 FWL CONGRESS SECTION	WOLFCAMP	13779
30025336390000	9418 JV-P VACA DRAW	1	BTA OIL PRODUCERS LLC	25S 33E 10 C NE SW	1980 FSL 1980 FWL CONGRESS SECTION	BONE SPRING	12575
30025416210000	VACA DRAW 9418 JV-P	2H	BTA OIL PRODUCERS LLC	25S 33E 10 NE NE	190 FNL 330 FEL CONGRESS SECTION	BONE SPRING	14018

## PRODUCTION FACILITY LAYOUT

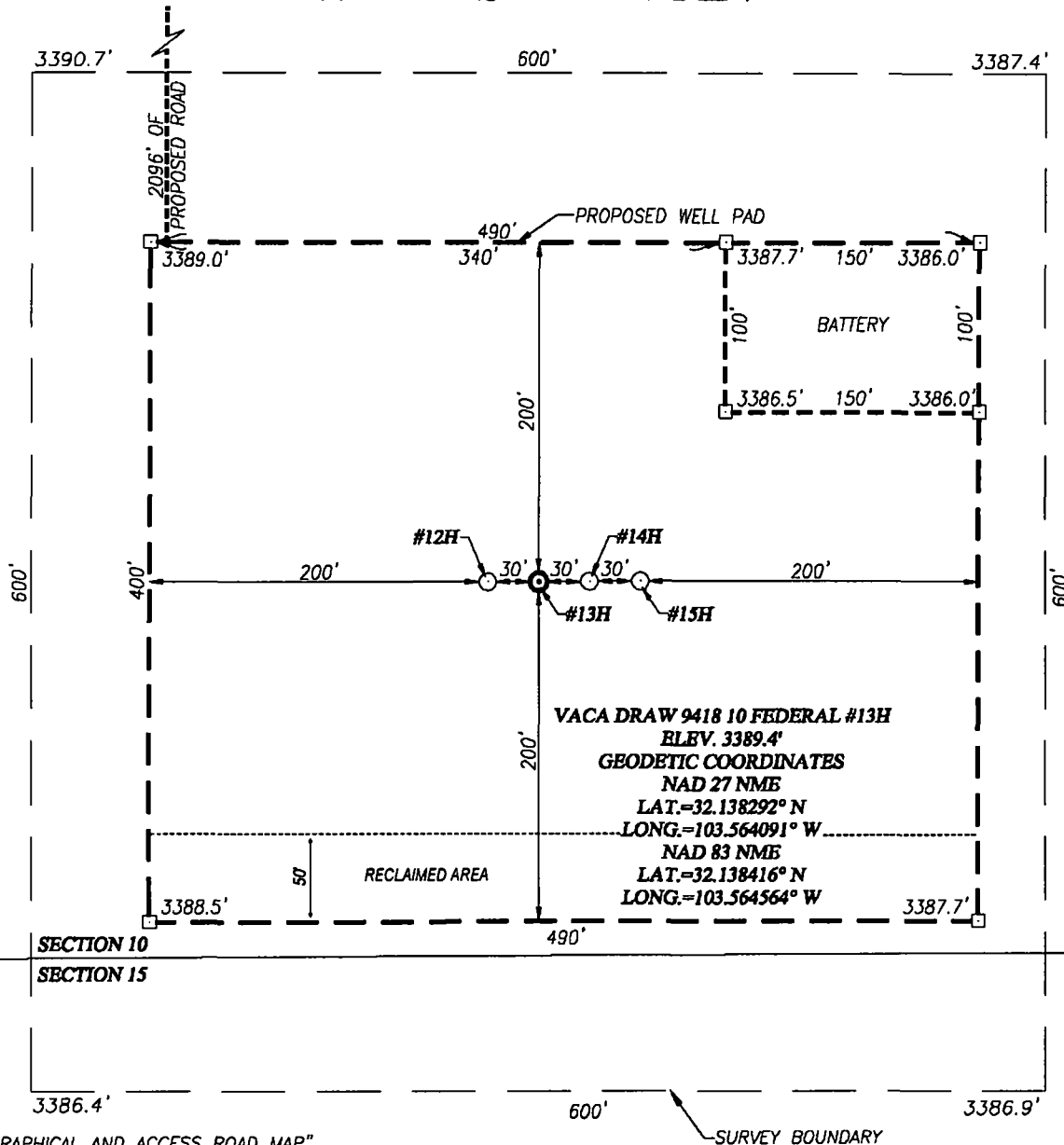




## WATER SOURCE AND TRANSPORTATION MAP

BTA OIL PRODUCERS, LLC  
VACA DRAW 9418 10 FEDERAL  
SEC 10 T25S R33E  
LEA COUNTY, NM

# WELL SITE PLAN



## BTA OIL PRODUCERS, LLC

**VACA DRAW 9418 10 FEDERAL #13H WELL LOCATED  
 220 FEET FROM THE SOUTH LINE AND 1305 FEET FROM THE  
 WEST LINE OF SECTION 10, TOWNSHIP 25 SOUTH,  
 RANGE 33 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO**

Survey Date: 3/22/17	CAD Date: 4/04/17	Drawn By: ACK
W.O. No.: 17110235	Rev: .	Rel. W.O.: .

Sheet 1 of 1



**PROVIDING SURVEYING SERVICES  
 SINCE 1946**  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO HOBBS, N.M. 88240  
 (575) 393-3117 www.jwsc.biz  
 TBPLS# 10021000



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## PWD Data Report

05/09/2019

### Section 1 - General

Would you like to address long-term produced water disposal? NO

### Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

PWD disturbance (acres):

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Describe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

### **Section 3 - Unlined Pits**

**Would you like to utilize Unlined Pit PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Unlined pit PWD on or off channel:**

**Unlined pit PWD discharge volume (bbl/day):**

**Unlined pit specifications:**

**Precipitated solids disposal:**

**Describe precipitated solids disposal:**

**Precipitated solids disposal permit:**

**Unlined pit precipitated solids disposal schedule:**

**Unlined pit precipitated solids disposal schedule attachment:**

**Unlined pit reclamation description:**

**Unlined pit reclamation attachment:**

**Unlined pit Monitor description:**

**Unlined pit Monitor attachment:**

**Do you propose to put the produced water to beneficial use?**

**Beneficial use user confirmation:**

**Estimated depth of the shallowest aquifer (feet):**

**Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?**

**TDS lab results:**

**Geologic and hydrologic evidence:**

**State authorization:**

**Unlined Produced Water Pit Estimated percolation:**

**Unlined pit: do you have a reclamation bond for the pit?**

**Is the reclamation bond a rider under the BLM bond?**

**Unlined pit bond number:**

**Unlined pit bond amount:**

**Additional bond information attachment:**

### **Section 4 - Injection**

**Would you like to utilize Injection PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Injection PWD discharge volume (bbl/day):**

**Injection well mineral owner:**

**Injection well type:**

**Injection well number:**

**Injection well name:**

**Assigned injection well API number?**

**Injection well API number:**

**Injection well new surface disturbance (acres):**

**Minerals protection information:**

**Mineral protection attachment:**

**Underground Injection Control (UIC) Permit?**

**UIC Permit attachment:**

### **Section 5 - Surface Discharge**

**Would you like to utilize Surface Discharge PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Surface discharge PWD discharge volume (bbl/day):**

**Surface Discharge NPDES Permit?**

**Surface Discharge NPDES Permit attachment:**

**Surface Discharge site facilities information:**

**Surface discharge site facilities map:**

### **Section 6 - Other**

**Would you like to utilize Other PWD options? NO**

**Produced Water Disposal (PWD) Location:**

**PWD surface owner:**

**PWD disturbance (acres):**

**Other PWD discharge volume (bbl/day):**

**Other PWD type description:**

**Other PWD type attachment:**

**Have other regulatory requirements been met?**

**Other regulatory requirements attachment:**





U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Bond Info Data Report

05/09/2019

### Bond Information

Federal/Indian APD: FED

BLM Bond number: NM1195

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:



U.S. Department of the Interior  
BUREAU OF LAND MANAGEMENT

## Drilling Plan Data Report

05/09/2019

APD ID: 10400029708

Submission Date: 04/23/2018

Highlighted data  
reflects the most  
recent changes

Operator Name: BTA OIL PRODUCERS LLC

Well Name: VACA DRAW 9418 10 FED

Well Number: 13H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

### Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
1	QUATERNARY	3388	0	0	ALLUVIUM	NONE	No
2	RUSTLER	2204	1184	1184		NONE	No
3	TOP SALT	1726	1662	1662	SALT	NONE	No
4	BASE OF SALT	-1391	4779	4779	SALT	NONE	No
5	DELAWARE	-1641	5029	5029		NATURAL GAS,OIL	No
6	BONE SPRING	-5836	9224	9224		NATURAL GAS,OIL	No
7	WOLFCAMP	-8956	12344	12344		NATURAL GAS,OIL	Yes

### Section 2 - Blowout Prevention

Pressure Rating (PSI): 10M

Rating Depth: 14000

**Equipment:** The blowout preventer equipment (BOP) shown in Exhibit A will consist of a (10M system) double ram type (10,000 psi WP) preventer and a bag-type (Hydril) preventer (5000 psi WP). Both units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and 5" drill pipe rams on bottom. The BOP's will be installed on the 13-3/8" surface casing and utilized continuously until total depth is reached. A remote 2" kill line and 3" choke line will be incorporated in the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly cock, floor safety valve, choke lines, and choke manifold having a 10,000 psi WP rating. The 5M annular on the 10M system will be tested to 100% of rated working pressure.

**Requesting Variance?** YES

**Variance request:** A Choke Hose Variance is requested. See attached test chart and spec. 5M annular variance requested.

**Testing Procedure:** Pipe rams will be operated and checked each 24-hour period and each time the drill pipe is out of the hole. These functional tests will be documented on the daily driller's log. All BOP's and associated equipment will be tested as per BLM drilling Operations Order No. 2.

**Choke Diagram Attachment:**

10M\_choke\_mannifold\_20190425071522.pdf

Choke\_Hose\_\_Test\_Chart\_and\_Specs\_20190425071522.pdf

**BOP Diagram Attachment:**

Operator Name: BTA OIL PRODUCERS LLC

Well Name: VACA DRAW 9418 10 FED

Well Number: 13H

10M\_choke\_mannifold\_20190425071522.pdf

Choke\_Hose\_\_\_Test\_Chart\_and\_Specs\_20190425071522.pdf

5M\_annular\_well\_control\_plan\_for\_BLM\_20190425071637.docx

10M\_annular\_variance\_20190425071641.pdf

BLM\_10M\_BOP\_with\_5M\_annular\_20190425071642.pdf

### Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	1200	0	1200	3414	2314	1200	J-55	54.5	STC	2.4	5.9	DRY	9.01	DRY	14.9
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5000	0	5000			5000	J-55	40	LTC	1.7	2.6	DRY	2.6	DRY	3.1
3	PRODUCTION	8.75	7.0	NEW	API	N	0	12513	0	12397	3414	-6686	12513	P-110	29	LTC	1.4	1.6	DRY	2.1	DRY	2.5
4	LINER	6.125	4.5	NEW	API	N	11900	17452	11900	12474			5552	P-110	11.6	LTC	1.6	2.2	DRY	2	DRY	2.6

#### Casing Attachments

Casing ID: 1 String Type: SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Vaca\_Draw\_9418\_10\_Fed\_13H\_Casing\_Assumptions\_20180423084909.pdf

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

#### Casing Attachments

---

**Casing ID:** 2      **String Type:** INTERMEDIATE

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Vaca\_Draw\_9418\_10\_Fed\_13H\_Casing\_Assumptions\_20180423084943.pdf

---

**Casing ID:** 3      **String Type:** PRODUCTION

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Vaca\_Draw\_9418\_10\_Fed\_13H\_Casing\_Assumptions\_20180423085033.pdf

---

**Casing ID:** 4      **String Type:** LINER

**Inspection Document:**

**Spec Document:**

**Tapered String Spec:**

**Casing Design Assumptions and Worksheet(s):**

Vaca\_Draw\_9418\_10\_Fed\_\_12H\_Casing\_Assumptions\_20180420093242.pdf

---

#### Section 4 - Cement

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1009	690	1.73	13.5	1193	100	Class C	2% CaCl2
SURFACE	Tail		1009	1200	200	1.33	14.8	266	100	Class C	2% CaCl2
INTERMEDIATE	Lead		0	4150	1240	2.08	12.9	2579	100	Class C	6% Gel
INTERMEDIATE	Tail		4150	5600	250	1.33	14.8	332	25	Class C	0.004 GPS cf-41L
PRODUCTION	Lead		4000	1120 0	530	2.87	10.5	1173	40	100% TXL	Plus Additives
PRODUCTION	Tail		1120 0	1251 3	200	1.18	15.6	236	15	Class H	2% Gel
LINER	Lead		1185 0	1745 2	470	1.22	14.4	561	10	50:50 H	50% Class H POZ. 2% Gel 1 Gal / 1000 sx CF-41L

### Section 5 - Circulating Medium

**Mud System Type:** Closed

**Will an air or gas system be Used?** NO

**Description of the equipment for the circulating system in accordance with Onshore Order #2:**

**Diagram of the equipment for the circulating system in accordance with Onshore Order #2:**

**Describe what will be on location to control well or mitigate other conditions:** Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

**Describe the mud monitoring system utilized:** PVT/Pason/Visual Monitoring

### Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
-----------	--------------	----------	----------------------	----------------------	---------------------	-----------------------------	----	----------------	----------------	-----------------	----------------------------

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1200	SPUD MUD	8.3	8.4							
1200	5000	SALT SATURATED	10	10.2							
5000	1239 7	OTHER : Cut Brine	8.6	9.2							
1239 7	1247 4	OIL-BASED MUD	11	11.5							

### Section 6 - Test, Logging, Coring

**List of production tests including testing procedures, equipment and safety measures:**

No DST Planned

**List of open and cased hole logs run in the well:**

GR

**Coring operation description for the well:**

No cores are currently planned

### Section 7 - Pressure

**Anticipated Bottom Hole Pressure:** 7475

**Anticipated Surface Pressure:** 4730.71

**Anticipated Bottom Hole Temperature(F):** 181

**Anticipated abnormal pressures, temperatures, or potential geologic hazards?** NO

**Describe:**

**Contingency Plans geohazards description:**

**Contingency Plans geohazards attachment:**

**Hydrogen Sulfide drilling operations plan required?** YES

**Hydrogen sulfide drilling operations plan:**

BTA\_Oil\_Producers\_LLC\_\_\_EMERGENCY\_CALL\_LIST\_20190425072215.pdf

H2S\_Equipment\_Schematic\_\_\_20190425072216.pdf

H2S\_Plan\_20190425072216.pdf

**Operator Name:** BTA OIL PRODUCERS LLC

**Well Name:** VACA DRAW 9418 10 FED

**Well Number:** 13H

### **Section 8 - Other Information**

**Proposed horizontal/directional/multi-lateral plan submission:**

Vaca\_Draw\_9418\_10\_Fed\_13H\_Directional\_Plan\_20180423085447.pdf

**Other proposed operations facets description:**

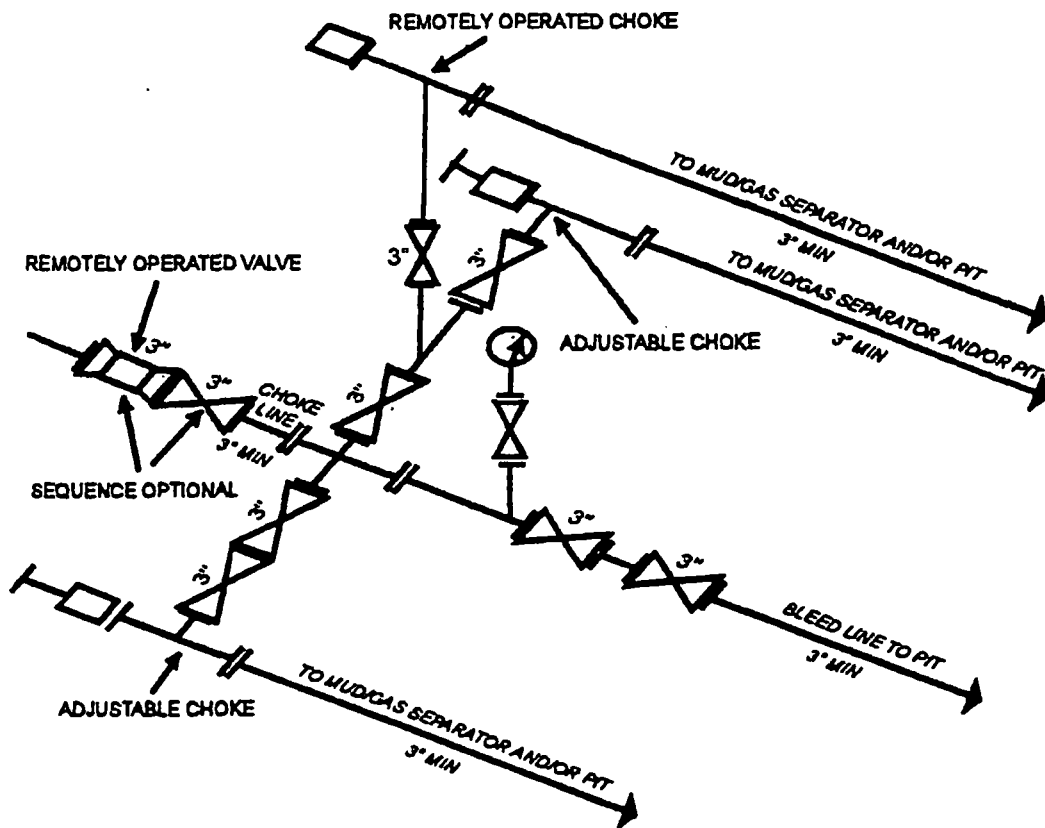
A variance is requested for a Multi Bowl Wellhead. See the attached schematic and running procedure.

**Other proposed operations facets attachment:**

**Other Variance attachment:**

Multi\_Bowl\_Diagram\_20180420093359.pdf

Wellhead System and Testing\_12-08-2016.pdf



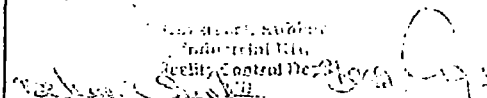
**10M AND 15M CHOKE MANIFOLD EQUIPMENT - CONFIGURATION OF CHOKES MAY VARY**  
 [53 FR 49661, Dec. 9, 1988 and 54 FR 39528, Sept. 27, 1989]



## Conflicts

Rig 94

Asset 24455

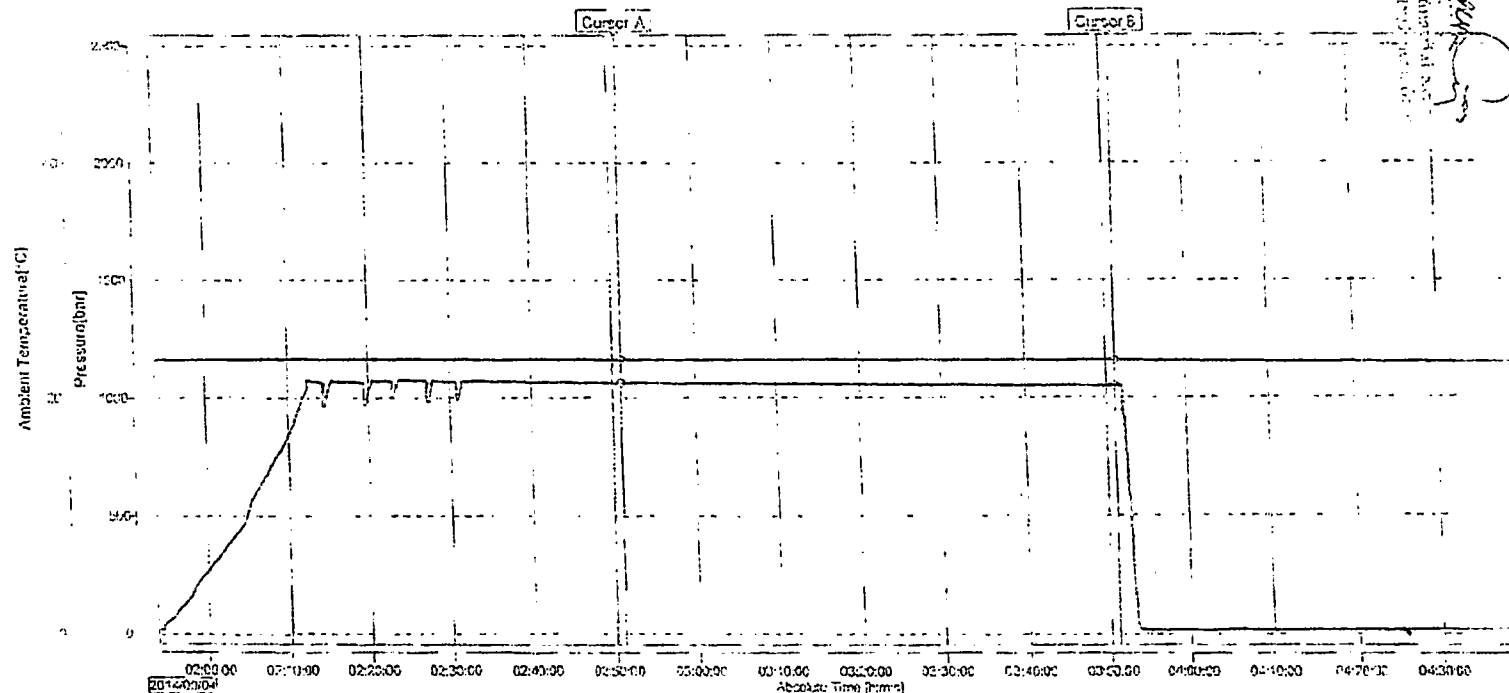
QUALITY CONTROL INSPECTION AND TEST CERTIFICATE				CERT. N°:	1592
PURCHASER: ContiTech Oil & Marine Corp.				P.O. N°:	4500461753
CONTITECH ORDER N°: 539225		HOSE TYPE: 3" ID Choke & Kill Hose			
HOSE SERIAL N°: 68547		NOMINAL / ACTUAL LENGTH: 7,62 m / 7,66 m			
W.P. 68,9 MPa 10000 psi		T.P. 103,4 MPa 15000 psi		Duration: 60 min.	
Pressure test with water at ambient temperature					
See attachment. ( 1 page )					
<div style="display: flex; justify-content: space-between;"> <div> --&gt; 10 Min.  ↑ 50 MPa </div> </div>					
COUPLINGS Type		Serial N°		Quality	
3" coupling with 4 1/16" 10K API Swivel Flange end Hub		2574 5533		AISI 4130 AISI 4130 AISI 4130	
				Heat N° A1582N H8572 58855 A1199N A1423N	
Not Designed For Well Testing				API Spec 16 C	
Fire Rated				Temperature rate: "B"	
All metal parts are flawless					
WE CERTIFY THAT THE ABOVE HOSE HAS BEEN MANUFACTURED IN ACCORDANCE WITH THE TERMS OF THE ORDER INSPECTED AND PRESSURE TESTED AS ABOVE WITH SATISFACTORY RESULT.					
STATEMENT OF CONFORMITY: We hereby certify that the above items/equipment supplied by us are in conformity with the terms, conditions and specifications of the above Purchaser Order and that these items/equipment were fabricated inspected and tested in accordance with the referenced standards, codes and specifications and meet the relevant acceptance criteria and design requirements.					
Date:	Inspector		Quality Control		
04. September 2014.					

File Name : 000220\_68543,68545+547.GEV.....000236\_68543,68545+547.GEV  
 File Message : 68543,68545,68547  
 Device Type : GX10  
 Serial No. : SGP606393  
 Data Count : 9046

Sampling Int. : 1.000 sec  
 Start Time : 2014/09/04 01:53:54.000  
 Stop Time : 2014/09/04 04:39:39.000

Print Group : Press-Temp  
 Print Range : 2014/09/04 01:53:54.000 - 2014/09/04 04:39:39.000  
 Comment :

	Cursor A	Cursor B	Difference
Data No	3402	7032	3630
Absolute Time	2014/09/04 02:01:05.000	2014/09/04 03:51:06.000	01:00:01.000
Tag Comment	Value A	Value B	Value B-A
Pressure[bar]	1082.95	1048.57	-34.39
Ambient Temperature[°C]	23.24	23.14	-0.10



## Well control plan for 10M BOPE with 5M annular

### Drilling

1. Sound alarm (alert crew).
2. Space out drill string.
3. Shut down pumps (stop pumps and rotary).
4. Shut-in Well with annular with HCR and choke in closed position.
5. Confirm shut-in.
6. Notify tool pusher/company representative.
7. Read and record the following:
  - a. SIDPP & SICP
  - b. Time of shut in
  - c. Pit gain
8. Regroup and identify forward plan. If pressure has increased to 2500 psi, confirm spacing and close the upper variable bore rams.
9. Prepare for well kill operation.

### Tripping

1. Sound alarm (alert rig crew)
2. Stab full opening safety valve and close valve
3. Space out drill string
4. Shut in the well with the annular with HCR and choke in closed position
5. Confirm shut in
6. Notify tool pusher/company representative
7. Read and record the following
  - a. Time of shut in
  - b. SIDPP and SICP
  - c. Pit gain
8. If pressure has increased to 2500 psi, confirm spacing and close the upper most variable bore ram.
9. Prepare for well kill operation.

### While Running Casing

1. Sound alarm (alert rig crew)
2. Stab crossover and full opening safety valve and close valve
3. Space out casing string
4. Shut in well with annular with HCR and choke in closed position
5. Confirm shut in
6. Notify tool pusher/company representative
7. Read and record the following:
  - a. SIDPP & SICP
  - b. Pit gain
  - c. Time
8. If pressure has increased to 2500 psi, confirm spacing and close the upper most variable bore ram.
9. Prepare for well kill operation.

### No Pipe In Hole (Open Hole)

1. Sound alarm (alert rig crew)

Well control plan for 10M BOPE with 5M annular

2. Shut in blind rams with HCR and choke in closed position
3. Confirm shut in
4. Notify tool pusher/company representative
5. Read and record the following:
  - a. SICP
  - b. Pit gain
  - c. Time
6. Prepare for well kill operation

Pulling BHA thru Stack

1. Prior to pulling last joint of drill pipe thru the stack
  - a. Perform flow check, if flowing:
    - a.i. Sound Alarm (alert crew)
    - a.ii. Stab full opening safety valve and close valve
    - a.iii. Space out drill string
    - a.iv. Shut in using upper most VBR, choke and HCR in closed position
    - a.v. Confirm shut in
    - a.vi. Notify tool pusher/company representative.
    - a.vii. Read and record the following:
      - a.vii.1. SIDPP and SICP
      - a.vii.2. Pit gain
      - a.vii.3. Time
  - a.viii. Prepare for well kill operation
2. With BHA in the stack:
  - a. If possible pull BHA clear of stack
    - a.i. Follow 'open hole' procedure above
  - b. If unable to pull BHA clear of stack
    - b.i. Stab crossover with full opening safety valve, close valve.
    - b.ii. Space out
    - b.iii. Shut in using upper most VBR. HCR and choke in closed position.
    - b.iv. Confirm shut in
    - b.v. Notify tool pusher/company rep
    - b.vi. Read and record the following:
      - b.vi.1. SIDPP and SICP
      - b.vi.2. Pit gain
      - b.vi.3. Time
  - b.vii. Prepare for well kill operation

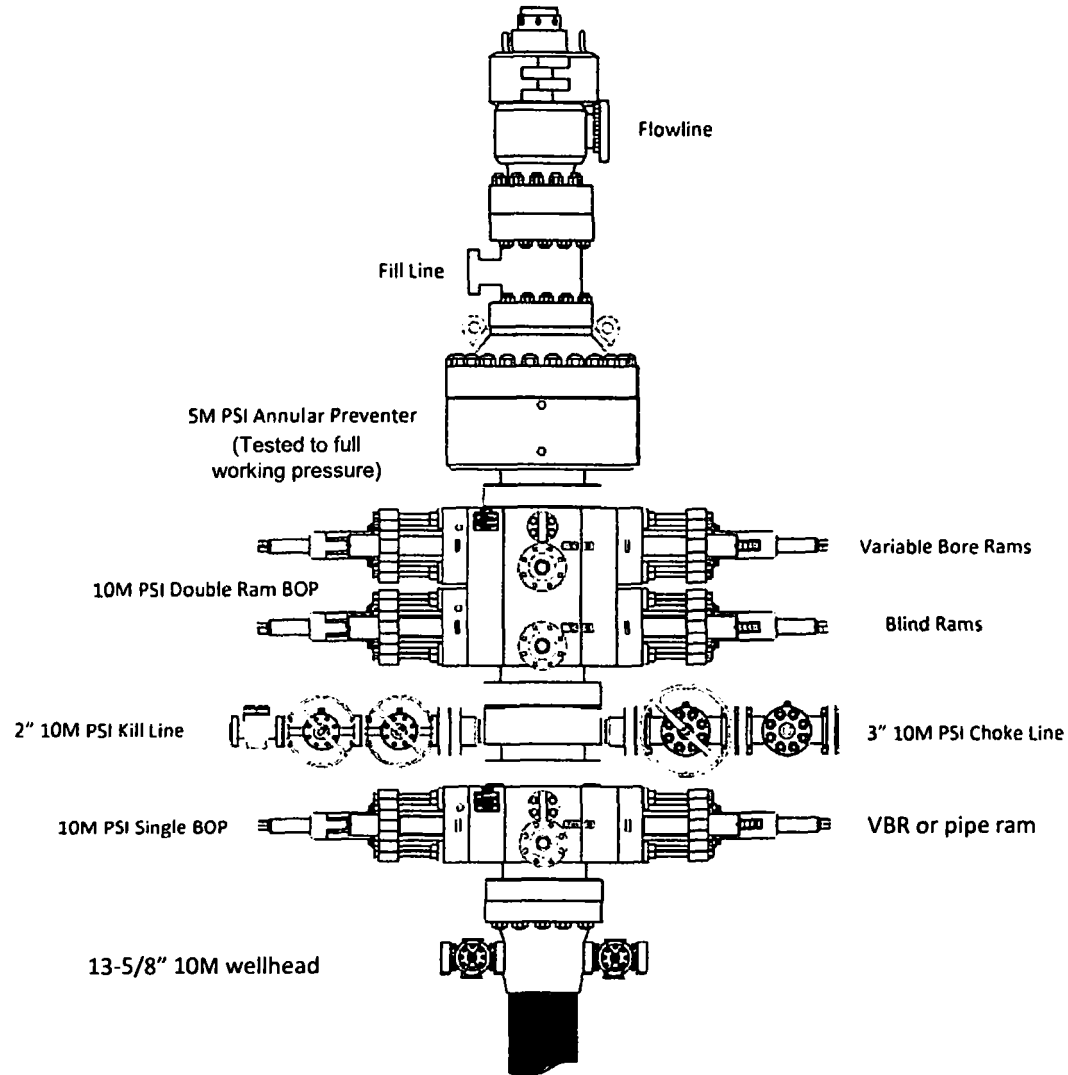
## Drilling component and preventer compatibility table for 10M approval

The following table outlines the drilling and production liner components for Wolfcamp targets requiring 10M BOPE approval. Variance is requested to utilize a 5M annular preventer in 6-1/8" hole as all components can be covered using 10M rated VBR's (variable bore rams). 5M annular on the 10M system will be tested to 100% of rated working pressure.

<b>6-1/8" hole section – 10M BOPE requirement (13-5/8" BOP)</b>			
<b>Component</b>	<b>OD</b>	<b>Preventer</b>	<b>RWP</b>
Drill pipe	4"	3.5"-5.5" VBR	10M
HWDP	4"	3.5"-5.5" VBR	10M
Jars	5"	3.5"-5.5" VBR	10M
DC's and NMDC's	4-3/4"	3.5"-5.5" VBR	10M
Mud motor	5"	3.5"-5.5" VBR	10M
Casing	4-1/2"	3.5"-5.5" VBR	10M
Open hole	NA	Blind rams	10M

<b>12-1/4" &amp; 8-3/4" hole sections – 5M BOPE requirement (13-5/8" BOP)</b>			
<b>Component</b>	<b>OD</b>	<b>Preventer</b>	<b>RWP</b>
Drill pipe	5"	3.5"-5.5" VBR or 5" pipe rams	10M
HWDP	5"	3.5"-5.5" VBR or 5" pipe rams	10M
Jars	6-1/4"	Annular	5M
DC's and NMDC's	7"-8"	Annular	5M
Mud motor	7"-8"	Annular	5M
Casing	9-5/8" & 7"	Annular	5M
Open hole	NA	Blind rams	10M

# 13-5/8" 10M PSI BOP Stack





**BTA Oil Producers, LLC**

**WELL:** Vaca Draw 9418 10 Fed #13H

**Casing Assumption**

Hole Size	Csg.Size	From (MD)	To (MD)	From (TVD)	To (TVD)	Tapered String	Weight (lbs)	Grade	Conn.	Collapse	Burst	Body Tension	Joint Tension	Dry/Buoyant	Mud Weight (ppg)
17.500	13.375	0	1200	0	1200	No	54.5	J-55	STC	2.40	5.90	14.90	9.01	Dry	8.4
12.250	9.625	0	5000	0	5000	No	40.0	J-55	LTC	1.70	2.60	3.10	2.60	Dry	10.0
8.750	7.000	0	12513	0	12397	No	29.0	P-110	LTC	1.40	1.90	2.50	2.10	Dry	9.2
6.125	4.500	11900	17452	11900	12474	No	11.6	P-110	LTC	1.60	2.20	2.60	2.00	Dry	11.50



**BTA Oil Producers, LLC**

**WELL:** Vaca Draw 9418 10 Fed #13H

**Casing Assumption**

Hole Size	Csg.Size	From (MD)	To (MD)	From (TVD)	To (TVD)	Tapered String	Weight (lbs)	Grade	Conn.	Collapse	Burst	Body Tension	Joint Tension	Dry/Buoyant	Mud Weight (ppg)
17.500	13.375	0	1200	0	1200	No	54.5	J-55	STC	2.40	5.90	14.90	9.01	Dry	8.4
12.250	9.625	0	5000	0	5000	No	40.0	J-55	LTC	1.70	2.60	3.10	2.60	Dry	10.0
8.750	7.000	0	12513	0	12397	No	29.0	P-110	LTC	1.40	1.90	2.50	2.10	Dry	9.2
6.125	4.500	11900	17452	11900	12474	No	11.6	P-110	LTC	1.60	2.20	2.60	2.00	Dry	11.50





**BTA Oil Producers, LLC**

**WELL:** Vaca Draw 9418 10 Fed #13H

**Casing Assumption**

Hole Size	Csg.Size	From (MD)	To (MD)	From (TVD)	To (TVD)	Tapered String	Weight (lbs)	Grade	Conn.	Collapse	Burst	Body Tension	Joint Tension	Dry/Buoyant	Mud Weight (ppg)
17.500	13.375	0	1200	0	1200	No	54.5	J-55	STC	2.40	5.90	14.90	9.01	Dry	8.4
12.250	9.625	0	5000	0	5000	No	40.0	J-55	LTC	1.70	2.60	3.10	2.60	Dry	10.0
8.750	7.000	0	12513	0	12397	No	29.0	P-110	LTC	1.40	1.90	2.50	2.10	Dry	9.2
6.125	4.500	11900	17452	11900	12474	No	11.6	P-110	LTC	1.60	2.20	2.60	2.00	Dry	11.50



**BTA Oil Producers, LLC**

**WELL:** Vaca Draw 9418 10 Fed #12H

**Casing Assumption**

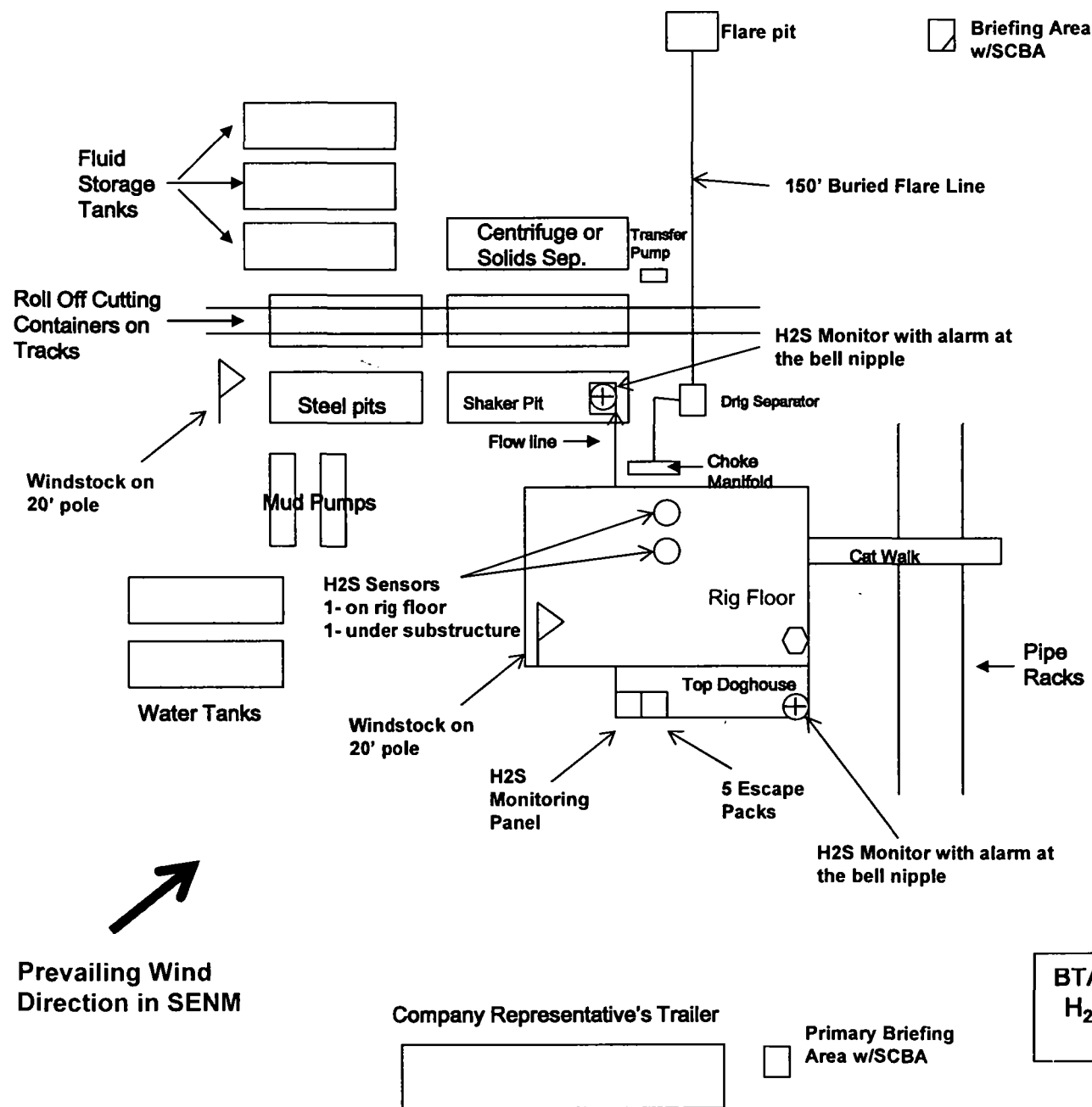
Hole Size	Csg.Size	From (MD)	To (MD)	From (TVD)	To (TVD)	Tapered String	Weight (lbs)	Grade	Conn.	Collapse	Burst	Body Tension	Joint Tension	Dry/Buoyant	Mud Weight (ppg)
17.500	13.375	0	1200	0	1200	No	54.5	J-55	STC	2.40	5.90	14.90	9.01	Dry	8.4
12.250	9.625	0	5000	0	5000	No	40.0	J-55	LTC	1.70	2.60	3.10	2.60	Dry	10.0
8.750	7.000	0	12564	0	12396	No	29.0	P-110	LTC	1.40	1.90	2.50	2.10	Dry	9.2
6.125	4.500	11964	17499	11900	12473	No	11.6	P-110	LTC	1.60	2.20	2.60	2.00	Dry	11.50

## **EMERGENCY CALL LIST**

	<b><u>OFFICE</u></b>	<b><u>MOBILE</u></b>
BTA Oil Producers LLC OFFICE	432-682-3753	
BEN GRIMES, Operations	432-682-3753	432-559-4309
NICK EATON, Drilling	432-682-3753	432-260-7841
TRACE WOHLFAHRT, Completions	432-682-3753	

## **EMERGENCY RESPONSE NUMBERS**

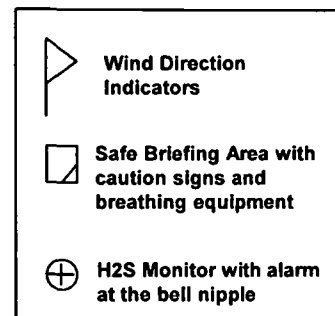
	<b><u>OFFICE</u></b>
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451



 Briefing Area w/SCBA

Road Access 

Location Entry Condition and H2S Sign 



**BTA OIL PRODUCERS LLC**  
**H<sub>2</sub>S Equipment Schematic**

## BTA OIL PRODUCERS LLC



### HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

#### **1. HYDROGEN SULFIDE TRAINING**

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

- a. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S).
- b. The proper use and maintenance of personal protective equipment and life support systems.
- c. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- d. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- a. The effects of H<sub>2</sub>S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- c. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

#### **2. H<sub>2</sub>S SAFETY EQUIPMENT AND SYSTEMS**

Note: All H<sub>2</sub>S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H<sub>2</sub>S. If H<sub>2</sub>S greater than 100 ppm is encountered in the gas stream we will shut in and install H<sub>2</sub>S equipment.

- a. Well Control Equipment:
  - Flare line.
  - Choke manifold with remotely operated choke.
  - Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
  - Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.
- b. Protective equipment for essential personnel:
  - Mark II Surviveair 30-minute units located in the dog house and at briefing areas.
- c. H<sub>2</sub>S detection and monitoring equipment:

- 2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.
- d. Visual warning systems:  
Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.
- e. Mud Program:  
The mud program has been designed to minimize the volume of H2S circulated to the surface.
- f. Metallurgy:  
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
- g. Communication:  
Company vehicles equipped with cellular telephone.

## **W A R N I N G**

**YOU ARE ENTERING AN H<sub>2</sub>S AREA  
AUTHORIZED PERSONNEL ONLY**

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED**
- 2. HARD HATS REQUIRED**
- 3. SMOKING IN DESIGNATED AREAS ONLY**
- 4. BE WIND CONSCIOUS AT ALL TIMES**
- 5. CK WITH BTA OIL PRODUCERS LLC FOREMAN AT MAIN OFFICE**

**BTA OIL PRODUCERS LLC**

**1-432-682-3753**