Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Carlsbad Field Office
OCD Hobbs

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

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

HOBBS OCD
APR 18 2018
RECEIVED

5. Lease Serial No.
NMNM97153

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
VACA DRAW 9418 10 FED 9H

2. Name of Operator
BTA OIL PRODUCERS LLC
Contact: KAYLA MCCONNELL
E-Mail: kmcconnell@btaoil.com

9. API Well No.
30-025-44251-00-X1

3a. Address
104 S. PECOS
MIDLAND, TX 79701

3b. Phone No. (include area code)
Ph: 432-682-3753 Ext: 106

10. Field and Pool or Exploratory Area
WOLFCAMP

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 10 T25S R33E NWNW 200FNL 550FWL
32.151787 N Lat, 103.566986 W Lon

11. County or Parish, State
LEA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

BTA Oil Producers, LLC respectfully request the following changes to the original APD as approved:

Current: 97900 Red Hills;Upper Bone Spring Shale
Change to: 98094 Bobcat Draw;Upper Wolfcamp

Current: BHL 50 FSL & 1870 FWL
Change to: BHL 50 FSL & 990 FWL

Current: 10100' TVD 15225' MD
Change to: 12474' TVD 17450' MD

Production Casing

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #406763 verified by the BLM Well Information System
For BTA OIL PRODUCERS LLC, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 03/28/2018 (18PP0806SE)

Name *(Printed/Typed)* KAYLA MCCONNELL — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 03/06/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By MUSTAFA HAQUE — Title PETROLEUM ENGINEER — Date 04/10/2018

Conditions of approval, if any, are attached. Approval of this notice 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.

Office Hobbs

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #406763 that would not fit on the form

32. Additional remarks, continued

Current: 5 1/2" casing, 17#, P-110, LTC, 0 - 10100' TVD, 0 - 15225' MD
Change to: 7" casing, 29#, P-110, BTC, 0 - 12397' TVD, 0 - 12517' MD

Production Liner
Add: 6 1/8" Hole, 4 1/2" Liner, 13.5#, P-110, BTC, 11917' - 17450' MD

7" Casing Cementing Details:
- Lead 530sx, 2.87 cu ft/sx, 10.5 ppg, 100% TXL Blend
- Tail 200sx, 1.18 cu ft/sx, 15.6 ppg, Class H

4 1/2" Production Liner Cementing Details:
- Lead 470sx, 1.22 cu ft/sx, 14.4 ppg, 50:50 Class H

Attached:
Amended C102
Amended Directional Plan

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	BTA Oil Producers LLC
LEASE NO.:	NMNM97153
WELL NAME & NO.:	Vaca Draw 9418 10 Fed 9H
SURFACE HOLE FOOTAGE:	200'/N & 550'/W
BOTTOM HOLE FOOTAGE	50'/S & 990'/W
LOCATION:	Section 10, T24S, R33E, NMPM
COUNTY:	LEA

Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	◉ Multibowl	
Other	☐4 String Area	☐Capitan Reef	☐WIPP

All previous COAs still apply except the following:

A. CASING

1. 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.

2. The minimum required fill of cement behind the **4 1/2** inch production liner is:

    - Cement as proposed. Operator shall provide method of verification. **Excess calculates to 9% - additional cement might be required.**

B. 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:**

    i. 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.

ii. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9 5/8** inch intermediate casing shoe shall be **10,000 (10M)** psi.

Option 2:

i. **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.**

   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.**

Variance approved to use a 5M annular. The annular must be tested to full working pressure (5000 psi.)

MHH 04112018

GENERAL REQUIREMENTS

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.

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-44250	98094	BOBCAT DRAW;UPPER WOLFCAMP

Property Code	Property Name	Well Number
	VACA DRAW 9418 10 FEDERAL	9H

OGRID No.	Operator Name	Elevation
260297	BTA OIL PRODUCERS, LLC	3414'

Surface Location

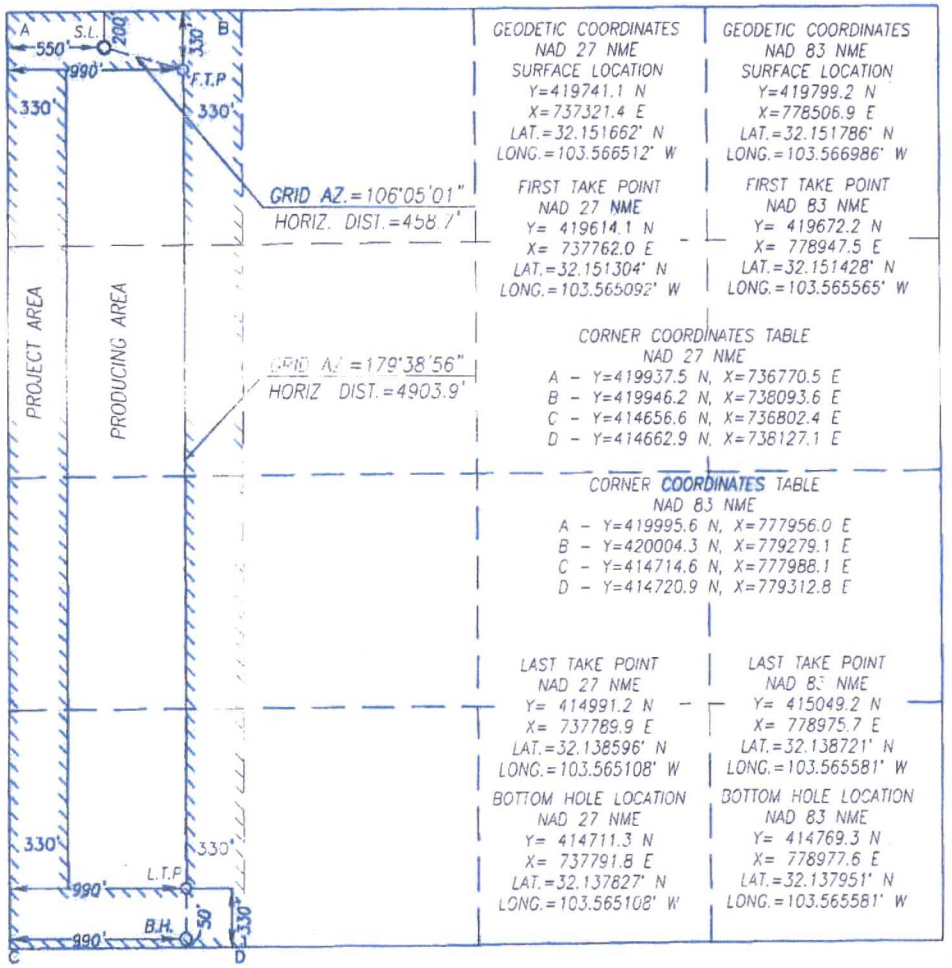
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	10	25-S	33-E		200	NORTH	550	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	10	25-S	33-E		50	SOUTH	990	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



GEODETIC COORDINATES
NAD 27 NME
SURFACE LOCATION
Y=419741.1 N
X=737321.4 E
LAT.=32.151662° N
LONG.=103.566512° W

GEODETIC COORDINATES
NAD 83 NME
SURFACE LOCATION
Y=419799.2 N
X=778506.9 E
LAT.=32.151786° N
LONG.=103.566986° W

FIRST TAKE POINT
NAD 27 NME
Y= 419614.1 N
X= 737762.0 E
LAT.=32.151304° N
LONG.=103.565092° W

FIRST TAKE POINT
NAD 83 NME
Y= 419672.2 N
X= 778947.5 E
LAT.=32.151428° N
LONG.=103.565565° W

CORNER COORDINATES TABLE
NAD 27 NME
A - Y=419937.5 N, X=736770.5 E
B - Y=419946.2 N, X=738093.6 E
C - Y=414656.6 N, X=736802.4 E
D - Y=414662.9 N, X=738127.1 E

CORNER COORDINATES TABLE
NAD 83 NME
A - Y=419995.6 N, X=777956.0 E
B - Y=420004.3 N, X=779279.1 E
C - Y=414714.6 N, X=777988.1 E
D - Y=414720.9 N, X=779312.8 E

LAST TAKE POINT
NAD 27 NME
Y= 414991.2 N
X= 737789.9 E
LAT.=32.138596° N
LONG.=103.565108° W

LAST TAKE POINT
NAD 83 NME
Y= 415049.2 N
X= 778975.7 E
LAT.=32.138721° N
LONG.=103.565581° W

BOTTOM HOLE LOCATION
NAD 27 NME
Y= 414711.3 N
X= 737791.8 E
LAT.=32.137827° N
LONG.=103.565108° W

BOTTOM HOLE LOCATION
NAD 83 NME
Y= 414769.3 N
X= 778977.6 E
LAT.=32.137951° N
LONG.=103.565581° W

OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Kayla McConnell 3/6/18
Signature Date

KAYLA MCCONNELL
Printed Name

KMCCONNELL@BTAOIL.COM
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

FEBRUARY 15, 2018
Date of Survey
Signature & Seal of Professional Surveyor:

RONALD J. EIDSON
NEW MEXICO
3239
REGISTERED PROFESSIONAL SURVEYOR

Ronald J Eidson 03/02/2018
Certificate Number Gary G. Eidson 12641
Ronald J. Eidson 3239

ACK REL. W.O.: 17110115 JWSC W.O.: 18.13.0255

BTA Oil Producers, LLC

T G M

Azimuths to Grid North
True North: -0.41°
Magnetic North: 7.33°

Magnetic Field
Strength: 48750.0snT
Dip Angle: 60.17°
Date: 12/31/2009
Model: IGRF200510

WELL DETAILS: Vaca Draw #09H

Ground Level: 3414.0

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.0	0.0	419799.24	778506.91	32° 9' 6.430 N	103° 34' 1.150 W

SITE DETAILS: Vaca Draw Sec 10, T25S, R33E

Site Centre Northing: 419812.34
Easting: 779596.22

Positional Uncertainity: 0.0
Convergence: 0.41
Local North: Grid

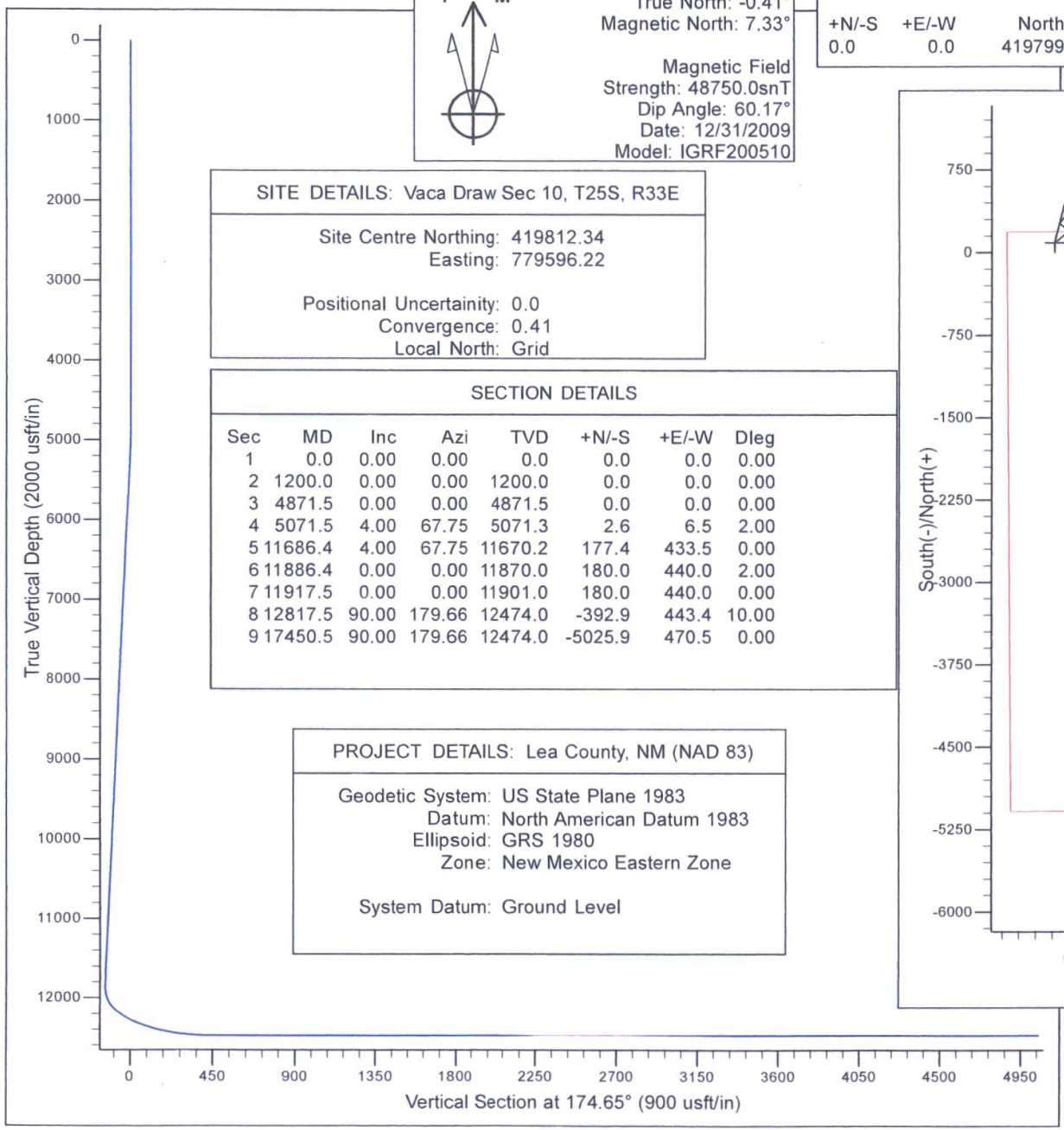
SECTION DETAILS

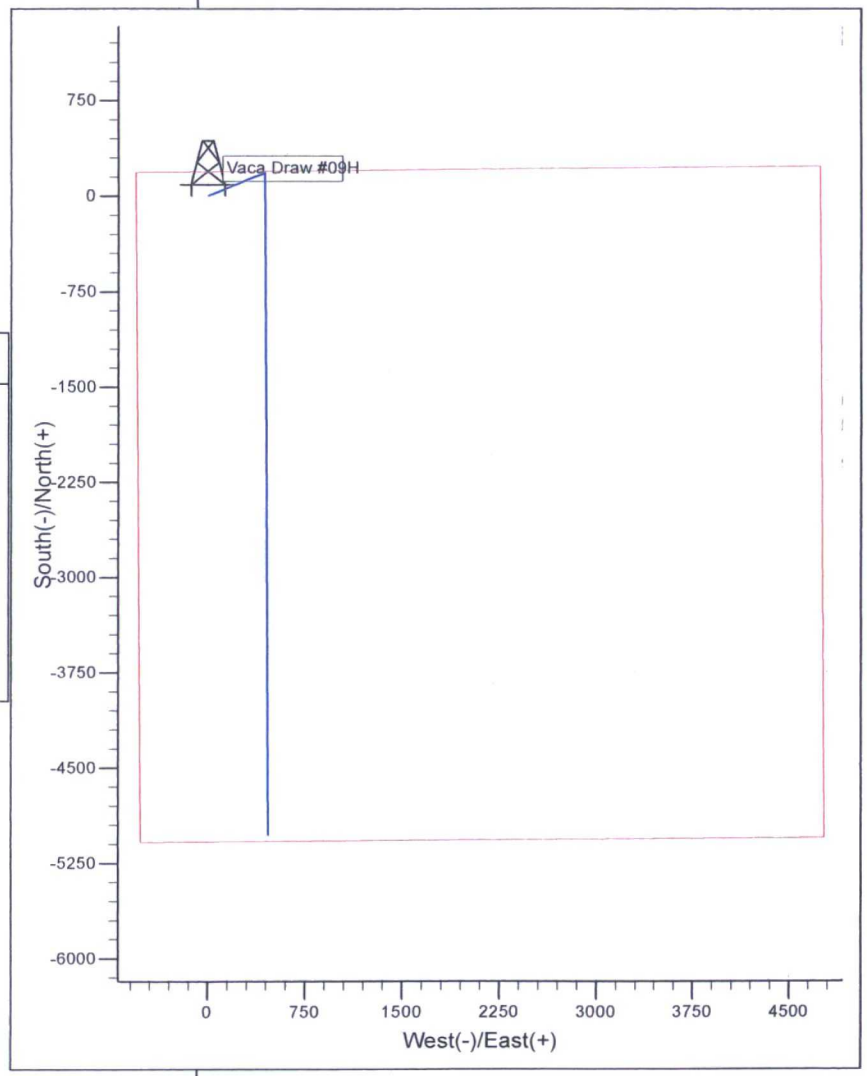
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00
2	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00
3	4871.5	0.00	0.00	4871.5	0.0	0.0	0.00
4	5071.5	4.00	67.75	5071.3	2.6	6.5	2.00
5	11686.4	4.00	67.75	11670.2	177.4	433.5	0.00
6	11886.4	0.00	0.00	11870.0	180.0	440.0	2.00
7	11917.5	0.00	0.00	11901.0	180.0	440.0	0.00
8	12817.5	90.00	179.66	12474.0	-392.9	443.4	10.00
9	17450.5	90.00	179.66	12474.0	-5025.9	470.5	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





BTA Oil Producers, LLC

Lea County, NM (NAD 83)
Vaca Draw Sec 10, T25S, R33E
Vaca Draw #09H

Wellbore #1

Plan: Design #1

Standard Planning Report - Geographic

05 March, 2018

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Vaca Draw #09H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 3414.0usft
Project:	Lea County, NM (NAD 83)	**MD Reference:**	GL @ 3414.0usft
Site:	Vaca Draw Sec 10, T25S, R33E	**North Reference:**	Grid
Well:	Vaca Draw #09H	**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 #09H

Well Position	**+N/-S**	0.0 usft	**Northing:**	419,799.24 usft	**Latitude:**	32° 9' 6.430 N
	+E/-W	0.0 usft	**Easting:**	778,506.91 usft	**Longitude:**	103° 34' 1.150 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	3,414.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	7.74	60.17	48,750

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)	Direction (°)
	0.0	0.0	0.0	174.65

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,871.5	0.00	0.00	4,871.5	0.0	0.0	0.00	0.00	0.00	0.00	
5,071.5	4.00	67.75	5,071.3	2.6	6.5	2.00	2.00	0.00	67.75	
11,686.4	4.00	67.75	11,670.2	177.4	433.5	0.00	0.00	0.00	0.00	
11,886.4	0.00	0.00	11,870.0	180.0	440.0	2.00	-2.00	0.00	180.00	
11,917.5	0.00	0.00	11,901.0	180.0	440.0	0.00	0.00	0.00	0.00	
12,817.5	90.00	179.66	12,474.0	-392.9	443.4	10.00	10.00	0.00	179.66	
17,450.5	90.00	179.66	12,474.0	-5,025.9	470.5	0.00	0.00	0.00	0.00	Vaca Draw #9H BHL

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Vaca Draw #09H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 3414.0usft
Project:	Lea County, NM (NAD 83)	**MD Reference:**	GL @ 3414.0usft
Site:	Vaca Draw Sec 10, T25S, R33E	**North Reference:**	Grid
Well:	Vaca Draw #09H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
100.0	0.00	0.00	100.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
200.0	0.00	0.00	200.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
300.0	0.00	0.00	300.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
400.0	0.00	0.00	400.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
500.0	0.00	0.00	500.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
600.0	0.00	0.00	600.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
700.0	0.00	0.00	700.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
800.0	0.00	0.00	800.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
900.0	0.00	0.00	900.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,100.0	0.00	0.00	2,100.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,200.0	0.00	0.00	2,200.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,300.0	0.00	0.00	2,300.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,400.0	0.00	0.00	2,400.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,500.0	0.00	0.00	2,500.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,600.0	0.00	0.00	2,600.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,700.0	0.00	0.00	2,700.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,800.0	0.00	0.00	2,800.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
2,900.0	0.00	0.00	2,900.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,000.0	0.00	0.00	3,000.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,100.0	0.00	0.00	3,100.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,200.0	0.00	0.00	3,200.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,300.0	0.00	0.00	3,300.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,400.0	0.00	0.00	3,400.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,500.0	0.00	0.00	3,500.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,600.0	0.00	0.00	3,600.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,700.0	0.00	0.00	3,700.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,800.0	0.00	0.00	3,800.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
3,900.0	0.00	0.00	3,900.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,000.0	0.00	0.00	4,000.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,100.0	0.00	0.00	4,100.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,200.0	0.00	0.00	4,200.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,300.0	0.00	0.00	4,300.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,400.0	0.00	0.00	4,400.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,500.0	0.00	0.00	4,500.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,600.0	0.00	0.00	4,600.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,700.0	0.00	0.00	4,700.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,800.0	0.00	0.00	4,800.0	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,871.5	0.00	0.00	4,871.5	0.0	0.0	419,799.24	778,506.91	32° 9' 6.430 N	103° 34' 1.150 W
4,900.0	0.57	67.75	4,900.0	0.1	0.1	419,799.30	778,507.04	32° 9' 6.431 N	103° 34' 1.148 W
5,000.0	2.57	67.75	5,000.0	1.1	2.7	419,800.33	778,509.58	32° 9' 6.441 N	103° 34' 1.119 W
5,071.5	4.00	67.75	5,071.3	2.6	6.5	419,801.88	778,513.37	32° 9' 6.456 N	103° 34' 1.075 W
5,100.0	4.00	67.75	5,099.8	3.4	8.3	419,802.64	778,515.21	32° 9' 6.463 N	103° 34' 1.053 W
5,200.0	4.00	67.75	5,199.5	6.0	14.8	419,805.28	778,521.66	32° 9' 6.489 N	103° 34' 0.978 W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Vaca Draw #09H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 3414.0usft
Project:	Lea County, NM (NAD 83)	**MD Reference:**	GL @ 3414.0usft
Site:	Vaca Draw Sec 10, T25S, R33E	**North Reference:**	Grid
Well:	Vaca Draw #09H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,300.0	4.00	67.75	5,299.3	8.7	21.2	419,807.92	778,528.12	32° 9' 6.514 N	103° 34' 0.902 W
5,400.0	4.00	67.75	5,399.0	11.3	27.7	419,810.56	778,534.58	32° 9' 6.540 N	103° 34' 0.827 W
5,500.0	4.00	67.75	5,498.8	14.0	34.1	419,813.20	778,541.03	32° 9' 6.566 N	103° 34' 0.752 W
5,600.0	4.00	67.75	5,598.5	16.6	40.6	419,815.84	778,547.49	32° 9' 6.592 N	103° 34' 0.676 W
5,700.0	4.00	67.75	5,698.3	19.2	47.0	419,818.48	778,553.94	32° 9' 6.617 N	103° 34' 0.601 W
5,800.0	4.00	67.75	5,798.1	21.9	53.5	419,821.13	778,560.40	32° 9' 6.643 N	103° 34' 0.526 W
5,900.0	4.00	67.75	5,897.8	24.5	60.0	419,823.77	778,566.86	32° 9' 6.669 N	103° 34' 0.451 W
6,000.0	4.00	67.75	5,997.6	27.2	66.4	419,826.41	778,573.31	32° 9' 6.694 N	103° 34' 0.375 W
6,100.0	4.00	67.75	6,097.3	29.8	72.9	419,829.05	778,579.77	32° 9' 6.720 N	103° 34' 0.300 W
6,200.0	4.00	67.75	6,197.1	32.4	79.3	419,831.69	778,586.23	32° 9' 6.746 N	103° 34' 0.225 W
6,300.0	4.00	67.75	6,296.8	35.1	85.8	419,834.33	778,592.68	32° 9' 6.771 N	103° 34' 0.149 W
6,400.0	4.00	67.75	6,396.6	37.7	92.2	419,836.97	778,599.14	32° 9' 6.797 N	103° 34' 0.074 W
6,500.0	4.00	67.75	6,496.4	40.4	98.7	419,839.61	778,605.59	32° 9' 6.823 N	103° 33' 59.999 W
6,600.0	4.00	67.75	6,596.1	43.0	105.1	419,842.26	778,612.05	32° 9' 6.848 N	103° 33' 59.923 W
6,700.0	4.00	67.75	6,695.9	45.7	111.6	419,844.90	778,618.51	32° 9' 6.874 N	103° 33' 59.848 W
6,800.0	4.00	67.75	6,795.6	48.3	118.1	419,847.54	778,624.96	32° 9' 6.900 N	103° 33' 59.773 W
6,900.0	4.00	67.75	6,895.4	50.9	124.5	419,850.18	778,631.42	32° 9' 6.925 N	103° 33' 59.697 W
7,000.0	4.00	67.75	6,995.1	53.6	131.0	419,852.82	778,637.87	32° 9' 6.951 N	103° 33' 59.622 W
7,100.0	4.00	67.75	7,094.9	56.2	137.4	419,855.46	778,644.33	32° 9' 6.977 N	103° 33' 59.547 W
7,200.0	4.00	67.75	7,194.7	58.9	143.9	419,858.10	778,650.79	32° 9' 7.002 N	103° 33' 59.471 W
7,300.0	4.00	67.75	7,294.4	61.5	150.3	419,860.74	778,657.24	32° 9' 7.028 N	103° 33' 59.396 W
7,400.0	4.00	67.75	7,394.2	64.1	156.8	419,863.38	778,663.70	32° 9' 7.054 N	103° 33' 59.321 W
7,500.0	4.00	67.75	7,493.9	66.8	163.3	419,866.03	778,670.15	32° 9' 7.079 N	103° 33' 59.245 W
7,600.0	4.00	67.75	7,593.7	69.4	169.7	419,868.67	778,676.61	32° 9' 7 105 N	103° 33' 59.170 W
7,700.0	4.00	67.75	7,693.4	72.1	176.2	419,871.31	778,683.07	32° 9' 7 131 N	103° 33' 59.095 W
7,800.0	4.00	67.75	7,793.2	74.7	182.6	419,873.95	778,689.52	32° 9' 7 156 N	103° 33' 59.020 W
7,900.0	4.00	67.75	7,892.9	77.3	189.1	419,876.59	778,695.98	32° 9' 7 182 N	103° 33' 58.944 W
8,000.0	4.00	67.75	7,992.7	80.0	195.5	419,879.23	778,702.44	32° 9' 7.208 N	103° 33' 58.869 W
8,100.0	4.00	67.75	8,092.5	82.6	202.0	419,881.87	778,708.89	32° 9' 7.234 N	103° 33' 58.794 W
8,200.0	4.00	67.75	8,192.2	85.3	208.4	419,884.51	778,715.35	32° 9' 7.259 N	103° 33' 58.718 W
8,300.0	4.00	67.75	8,292.0	87.9	214.9	419,887.15	778,721.80	32° 9' 7.285 N	103° 33' 58.643 W
8,400.0	4.00	67.75	8,391.7	90.6	221.4	419,889.80	778,728.26	32° 9' 7.311 N	103° 33' 58.568 W
8,500.0	4.00	67.75	8,491.5	93.2	227.8	419,892.44	778,734.72	32° 9' 7.336 N	103° 33' 58.492 W
8,600.0	4.00	67.75	8,591.2	95.8	234.3	419,895.08	778,741.17	32° 9' 7.362 N	103° 33' 58.417 W
8,700.0	4.00	67.75	8,691.0	98.5	240.7	419,897.72	778,747.63	32° 9' 7.388 N	103° 33' 58.342 W
8,800.0	4.00	67.75	8,790.8	101.1	247.2	419,900.36	778,754.08	32° 9' 7.413 N	103° 33' 58.266 W
8,900.0	4.00	67.75	8,890.5	103.8	253.6	419,903.00	778,760.54	32° 9' 7.439 N	103° 33' 58.191 W
9,000.0	4.00	67.75	8,990.3	106.4	260.1	419,905.64	778,767.00	32° 9' 7.465 N	103° 33' 58.116 W
9,100.0	4.00	67.75	9,090.0	109.0	266.6	419,908.28	778,773.45	32° 9' 7.490 N	103° 33' 58.040 W
9,200.0	4.00	67.75	9,189.8	111.7	273.0	419,910.92	778,779.91	32° 9' 7.516 N	103° 33' 57.965 W
9,300.0	4.00	67.75	9,289.5	114.3	279.5	419,913.57	778,786.36	32° 9' 7.542 N	103° 33' 57.890 W
9,400.0	4.00	67.75	9,389.3	117.0	285.9	419,916.21	778,792.82	32° 9' 7.567 N	103° 33' 57.815 W
9,500.0	4.00	67.75	9,489.0	119.6	292.4	419,918.85	778,799.28	32° 9' 7.593 N	103° 33' 57.739 W
9,600.0	4.00	67.75	9,588.8	122.3	298.8	419,921.49	778,805.73	32° 9' 7.619 N	103° 33' 57.664 W
9,700.0	4.00	67.75	9,688.6	124.9	305.3	419,924.13	778,812.19	32° 9' 7.644 N	103° 33' 57.589 W
9,800.0	4.00	67.75	9,788.3	127.5	311.7	419,926.77	778,818.65	32° 9' 7.670 N	103° 33' 57.513 W
9,900.0	4.00	67.75	9,888.1	130.2	318.2	419,929.41	778,825.10	32° 9' 7.696 N	103° 33' 57.438 W
10,000.0	4.00	67.75	9,987.8	132.8	324.7	419,932.05	778,831.56	32° 9' 7.721 N	103° 33' 57.363 W
10,100.0	4.00	67.75	10,087.6	135.5	331.1	419,934.69	778,838.01	32° 9' 7.747 N	103° 33' 57.287 W
10,200.0	4.00	67.75	10,187.3	138.1	337.6	419,937.34	778,844.47	32° 9' 7.773 N	103° 33' 57.212 W
10,300.0	4.00	67.75	10,287.1	140.7	344.0	419,939.98	778,850.93	32° 9' 7.798 N	103° 33' 57.137 W
10,400.0	4.00	67.75	10,386.9	143.4	350.5	419,942.62	778,857.38	32° 9' 7.824 N	103° 33' 57.061 W
10,500.0	4.00	67.75	10,486.6	146.0	356.9	419,945.26	778,863.84	32° 9' 7.850 N	103° 33' 56.986 W
10,600.0	4.00	67.75	10,586.4	148.7	363.4	419,947.90	778,870.29	32° 9' 7.876 N	103° 33' 56.911 W
10,700.0	4.00	67.75	10,686.1	151.3	369.9	419,950.54	778,876.75	32° 9' 7.901 N	103° 33' 56.835 W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Vaca Draw #09H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 3414.0usft
Project:	Lea County, NM (NAD 83)	**MD Reference:**	GL @ 3414.0usft
Site:	Vaca Draw Sec 10, T25S, R33E	**North Reference:**	Grid
Well:	Vaca Draw #09H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	67.75	10,785.9	153.9	376.3	419,953.18	778,883.21	32° 9' 7.927 N	103° 33' 56.760 W
10,900.0	4.00	67.75	10,885.6	156.6	382.8	419,955.82	778,889.66	32° 9' 7.953 N	103° 33' 56.685 W
11,000.0	4.00	67.75	10,985.4	159.2	389.2	419,958.47	778,896.12	32° 9' 7.978 N	103° 33' 56.610 W
11,100.0	4.00	67.75	11,085.2	161.9	395.7	419,961.11	778,902.57	32° 9' 8.004 N	103° 33' 56.534 W
11,200.0	4.00	67.75	11,184.9	164.5	402.1	419,963.75	778,909.03	32° 9' 8.030 N	103° 33' 56.459 W
11,300.0	4.00	67.75	11,284.7	167.2	408.6	419,966.39	778,915.49	32° 9' 8.055 N	103° 33' 56.384 W
11,400.0	4.00	67.75	11,384.4	169.8	415.0	419,969.03	778,921.94	32° 9' 8.081 N	103° 33' 56.308 W
11,500.0	4.00	67.75	11,484.2	172.4	421.5	419,971.67	778,928.40	32° 9' 8.107 N	103° 33' 56.233 W
11,600.0	4.00	67.75	11,583.9	175.1	428.0	419,974.31	778,934.86	32° 9' 8.132 N	103° 33' 56.158 W
11,686.4	4.00	67.75	11,670.2	177.4	433.5	419,976.59	778,940.44	32° 9' 8.154 N	103° 33' 56.093 W
11,700.0	3.73	67.75	11,683.7	177.7	434.4	419,976.94	778,941.28	32° 9' 8.158 N	103° 33' 56.083 W
11,800.0	1.73	67.75	11,783.6	179.5	438.8	419,978.74	778,945.69	32° 9' 8.175 N	103° 33' 56.031 W
11,886.4	0.00	0.00	11,870.0	180.0	440.0	419,979.24	778,946.89	32° 9' 8.180 N	103° 33' 56.017 W
11,900.0	0.00	0.00	11,883.6	180.0	440.0	419,979.24	778,946.89	32° 9' 8.180 N	103° 33' 56.017 W
11,917.5	0.00	0.00	11,901.0	180.0	440.0	419,979.24	778,946.89	32° 9' 8.180 N	103° 33' 56.017 W
12,000.0	8.25	179.66	11,983.3	174.1	440.0	419,973.31	778,946.93	32° 9' 8.121 N	103° 33' 56.017 W
12,100.0	18.25	179.66	12,080.5	151.2	440.2	419,950.41	778,947.06	32° 9' 7.895 N	103° 33' 56.018 W
12,200.0	28.25	179.66	12,172.3	111.7	440.4	419,910.99	778,947.29	32° 9' 7.505 N	103° 33' 56.018 W
12,300.0	38.25	179.66	12,255.8	57.0	440.7	419,856.23	778,947.62	32° 9' 6.963 N	103° 33' 56.019 W
12,400.0	48.25	179.66	12,328.5	-11.4	441.1	419,787.80	778,948.02	32° 9' 6.286 N	103° 33' 56.020 W
12,500.0	58.25	179.66	12,388.3	-91.5	441.6	419,707.77	778,948.48	32° 9' 5.494 N	103° 33' 56.021 W
12,600.0	68.25	179.66	12,433.2	-180.7	442.1	419,618.59	778,949.01	32° 9' 4.611 N	103° 33' 56.023 W
12,700.0	78.25	179.66	12,462.0	-276.3	442.7	419,522.96	778,949.57	32° 9' 3.665 N	103° 33' 56.024 W
12,800.0	88.25	179.66	12,473.7	-375.5	443.3	419,423.78	778,950.15	32° 9' 2.684 N	103° 33' 56.025 W
12,817.5	90.00	179.66	12,474.0	-392.9	443.4	419,406.30	778,950.25	32° 9' 2.511 N	103° 33' 56.026 W
12,900.0	90.00	179.66	12,474.0	-475.5	443.8	419,323.79	778,950.73	32° 9' 1.694 N	103° 33' 56.027 W
13,000.0	90.00	179.66	12,474.0	-575.5	444.4	419,223.79	778,951.32	32° 9' 0.705 N	103° 33' 56.028 W
13,100.0	90.00	179.66	12,474.0	-675.5	445.0	419,123.80	778,951.90	32° 8' 59.715 N	103° 33' 56.030 W
13,200.0	90.00	179.66	12,474.0	-775.5	445.6	419,023.80	778,952.49	32° 8' 58.725 N	103° 33' 56.031 W
13,300.0	90.00	179.66	12,474.0	-875.5	446.2	418,923.81	778,953.08	32° 8' 57.736 N	103° 33' 56.033 W
13,400.0	90.00	179.66	12,474.0	-975.5	446.8	418,823.81	778,953.66	32° 8' 56.746 N	103° 33' 56.034 W
13,500.0	90.00	179.66	12,474.0	-1,075.5	447.4	418,723.81	778,954.25	32° 8' 55.757 N	103° 33' 56.036 W
13,600.0	90.00	179.66	12,474.0	-1,175.5	447.9	418,623.82	778,954.83	32° 8' 54.767 N	103° 33' 56.037 W
13,700.0	90.00	179.66	12,474.0	-1,275.5	448.5	418,523.82	778,955.42	32° 8' 53.778 N	103° 33' 56.039 W
13,800.0	90.00	179.66	12,474.0	-1,375.5	449.1	418,423.83	778,956.00	32° 8' 52.788 N	103° 33' 56.040 W
13,900.0	90.00	179.66	12,474.0	-1,475.4	449.7	418,323.83	778,956.59	32° 8' 51.799 N	103° 33' 56.042 W
14,000.0	90.00	179.66	12,474.0	-1,575.4	450.3	418,223.84	778,957.17	32° 8' 50.809 N	103° 33' 56.043 W
14,100.0	90.00	179.66	12,474.0	-1,675.4	450.9	418,123.84	778,957.76	32° 8' 49.820 N	103° 33' 56.045 W
14,200.0	90.00	179.66	12,474.0	-1,775.4	451.5	418,023.85	778,958.35	32° 8' 48.830 N	103° 33' 56.046 W
14,300.0	90.00	179.66	12,474.0	-1,875.4	452.0	417,923.85	778,958.93	32° 8' 47.841 N	103° 33' 56.048 W
14,400.0	90.00	179.66	12,474.0	-1,975.4	452.6	417,823.85	778,959.52	32° 8' 46.851 N	103° 33' 56.049 W
14,500.0	90.00	179.66	12,474.0	-2,075.4	453.2	417,723.86	778,960.10	32° 8' 45.862 N	103° 33' 56.051 W
14,600.0	90.00	179.66	12,474.0	-2,175.4	453.8	417,623.86	778,960.69	32° 8' 44.872 N	103° 33' 56.052 W
14,700.0	90.00	179.66	12,474.0	-2,275.4	454.4	417,523.87	778,961.27	32° 8' 43.883 N	103° 33' 56.054 W
14,800.0	90.00	179.66	12,474.0	-2,375.4	455.0	417,423.87	778,961.86	32° 8' 42.893 N	103° 33' 56.055 W
14,900.0	90.00	179.66	12,474.0	-2,475.4	455.6	417,323.88	778,962.45	32° 8' 41.904 N	103° 33' 56.057 W
15,000.0	90.00	179.66	12,474.0	-2,575.4	456.1	417,223.88	778,963.03	32° 8' 40.914 N	103° 33' 56.058 W
15,100.0	90.00	179.66	12,474.0	-2,675.4	456.7	417,123.88	778,963.62	32° 8' 39.924 N	103° 33' 56.060 W
15,200.0	90.00	179.66	12,474.0	-2,775.4	457.3	417,023.89	778,964.20	32° 8' 38.935 N	103° 33' 56.061 W
15,300.0	90.00	179.66	12,474.0	-2,875.4	457.9	416,923.89	778,964.79	32° 8' 37.945 N	103° 33' 56.062 W
15,400.0	90.00	179.66	12,474.0	-2,975.4	458.5	416,823.90	778,965.37	32° 8' 36.956 N	103° 33' 56.064 W
15,500.0	90.00	179.66	12,474.0	-3,075.4	459.1	416,723.90	778,965.96	32° 8' 35.966 N	103° 33' 56.065 W
15,600.0	90.00	179.66	12,474.0	-3,175.4	459.7	416,623.91	778,966.54	32° 8' 34.977 N	103° 33' 56.067 W
15,700.0	90.00	179.66	12,474.0	-3,275.4	460.2	416,523.91	778,967.13	32° 8' 33.987 N	103° 33' 56.068 W
15,800.0	90.00	179.66	12,474.0	-3,375.4	460.8	416,423.92	778,967.72	32° 8' 32.998 N	103° 33' 56.070 W

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Vaca Draw #09H
Company:	BTA Oil Producers, LLC	**TVD Reference:**	GL @ 3414.0usft
Project:	Lea County, NM (NAD 83)	**MD Reference:**	GL @ 3414.0usft
Site:	Vaca Draw Sec 10, T25S, R33E	**North Reference:**	Grid
Well:	Vaca Draw #09H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	179.66	12,474.0	-3,475.4	461.4	416,323.92	778,968.30	32° 8' 32.008 N	103° 33' 56.071 W
16,000.0	90.00	179.66	12,474.0	-3,575.4	462.0	416,223.92	778,968.89	32° 8' 31.019 N	103° 33' 56.073 W
16,100.0	90.00	179.66	12,474.0	-3,675.4	462.6	416,123.93	778,969.47	32° 8' 30.029 N	103° 33' 56.074 W
16,200.0	90.00	179.66	12,474.0	-3,775.4	463.2	416,023.93	778,970.06	32° 8' 29.040 N	103° 33' 56.076 W
16,300.0	90.00	179.66	12,474.0	-3,875.4	463.7	415,923.94	778,970.64	32° 8' 28.050 N	103° 33' 56.077 W
16,400.0	90.00	179.66	12,474.0	-3,975.4	464.3	415,823.94	778,971.23	32° 8' 27.061 N	103° 33' 56.079 W
16,500.0	90.00	179.66	12,474.0	-4,075.4	464.9	415,723.95	778,971.81	32° 8' 26.071 N	103° 33' 56.080 W
16,600.0	90.00	179.66	12,474.0	-4,175.4	465.5	415,623.95	778,972.40	32° 8' 25.082 N	103° 33' 56.082 W
16,700.0	90.00	179.66	12,474.0	-4,275.4	466.1	415,523.95	778,972.99	32° 8' 24.092 N	103° 33' 56.083 W
16,800.0	90.00	179.66	12,474.0	-4,375.4	466.7	415,423.96	778,973.57	32° 8' 23.102 N	103° 33' 56.085 W
16,900.0	90.00	179.66	12,474.0	-4,475.4	467.3	415,323.96	778,974.16	32° 8' 22.113 N	103° 33' 56.086 W
17,000.0	90.00	179.66	12,474.0	-4,575.4	467.8	415,223.97	778,974.74	32° 8' 21.123 N	103° 33' 56.088 W
17,100.0	90.00	179.66	12,474.0	-4,675.4	468.4	415,123.97	778,975.33	32° 8' 20.134 N	103° 33' 56.089 W
17,200.0	90.00	179.66	12,474.0	-4,775.4	469.0	415,023.98	778,975.91	32° 8' 19.144 N	103° 33' 56.091 W
17,300.0	90.00	179.66	12,474.0	-4,875.4	469.6	414,923.98	778,976.50	32° 8' 18.155 N	103° 33' 56.092 W
17,400.0	90.00	179.66	12,474.0	-4,975.4	470.2	414,823.99	778,977.09	32° 8' 17.165 N	103° 33' 56.094 W
17,450.5	90.00	179.66	12,474.0	-5,025.9	470.5	414,773.51	778,977.38	32° 8' 16.666 N	103° 33' 56.094 W

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Vaca Draw #9H BHL	0.00	0.07	12,572.0	-5,030.4	470.1	414,769.00	778,977.00	32° 8' 16.621 N	103° 33' 56.099 W
- plan misses target center by 98.1usft at 17450.5usft MD (12474.0 TVD, -5025.9 N, 470.5 E)									
- Point									

Vaca Draw 8H/9H batch drilling process

- Spud #8H
  - Drill and set 13-3/8", 9-5/8" & 7" casing strings
  - Install/test TA cap
- Walk over #9H
- Spud #9H
  - Drill and set 13-3/8", 9-5/8" & 7" casing string.
  - Swap to oil based mud system
  - Drill and set 4-1/2" production liner
  - Install/test permanent tubing head
- Walk to back to #8H
  - Drill and set 4-1/2" production liner
  - Install/test permanent tubing head
- Move off pad, drilling complete

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)

6-1/8" hole section – 10M BOPE requirement (13-5/8" BOP)			
Component	**OD**	**Preventer**	**RWP**
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

12-1/4" & 8-3/4" hole sections – 5M BOPE requirement (13-5/8" BOP)			
Component	**OD**	**Preventer**	**RWP**
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

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. Sapce 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)
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

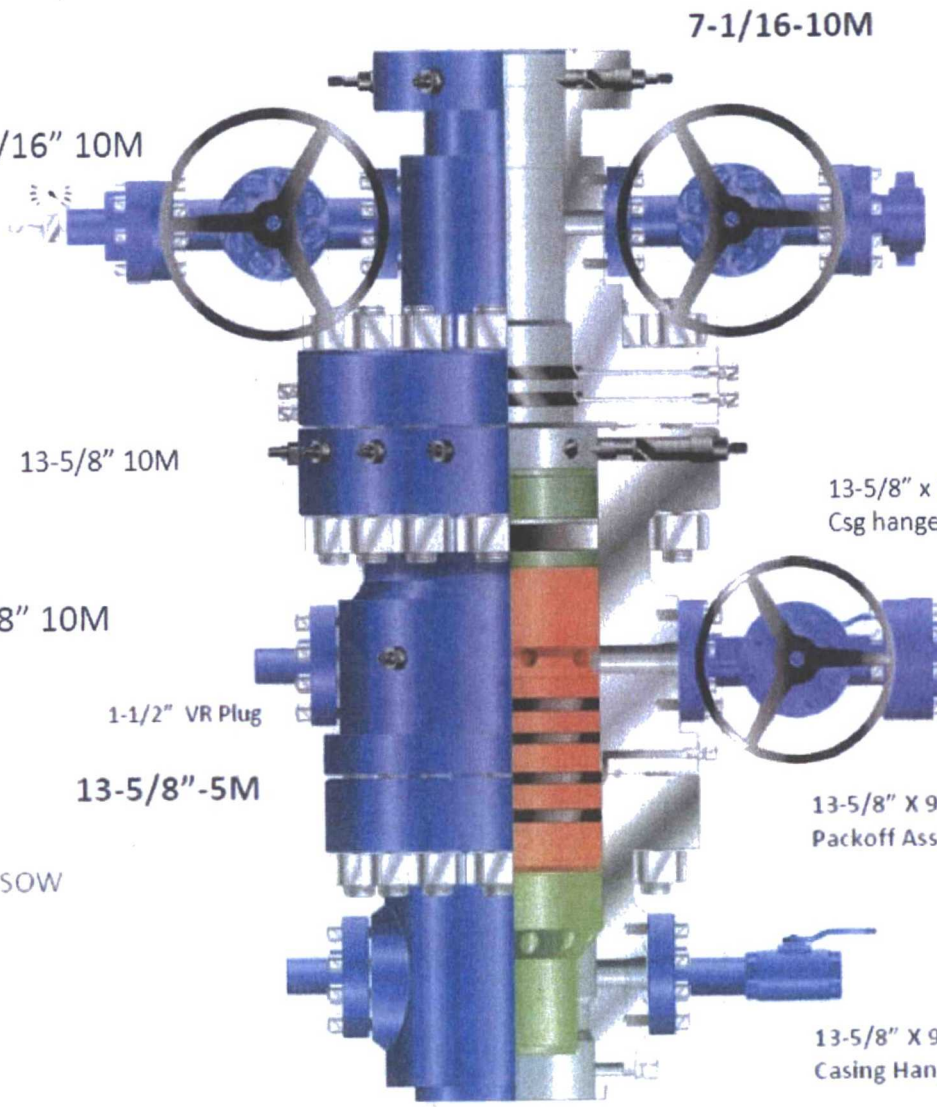
Pulling BHA thru Stack

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

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

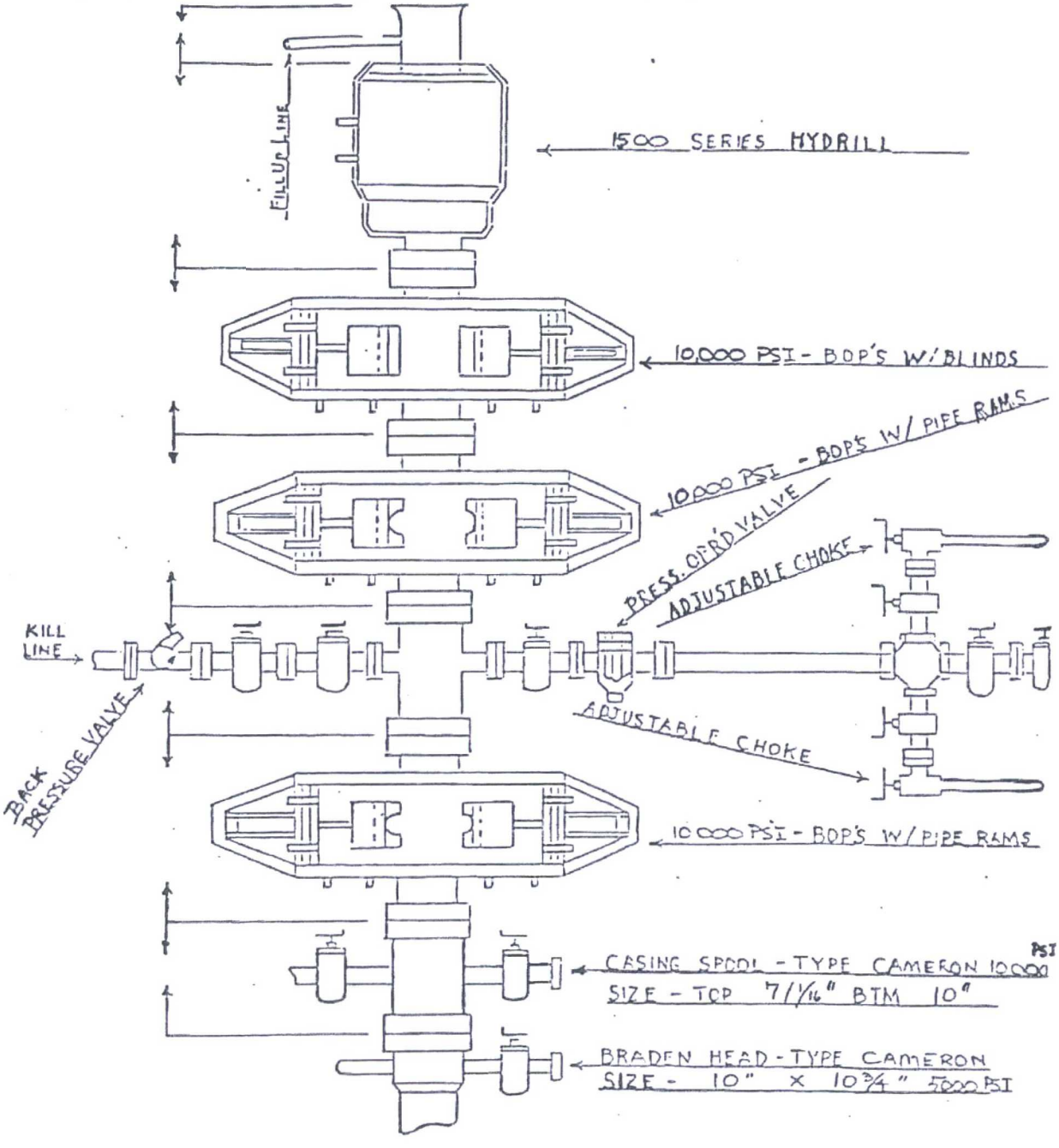
Casing spool

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

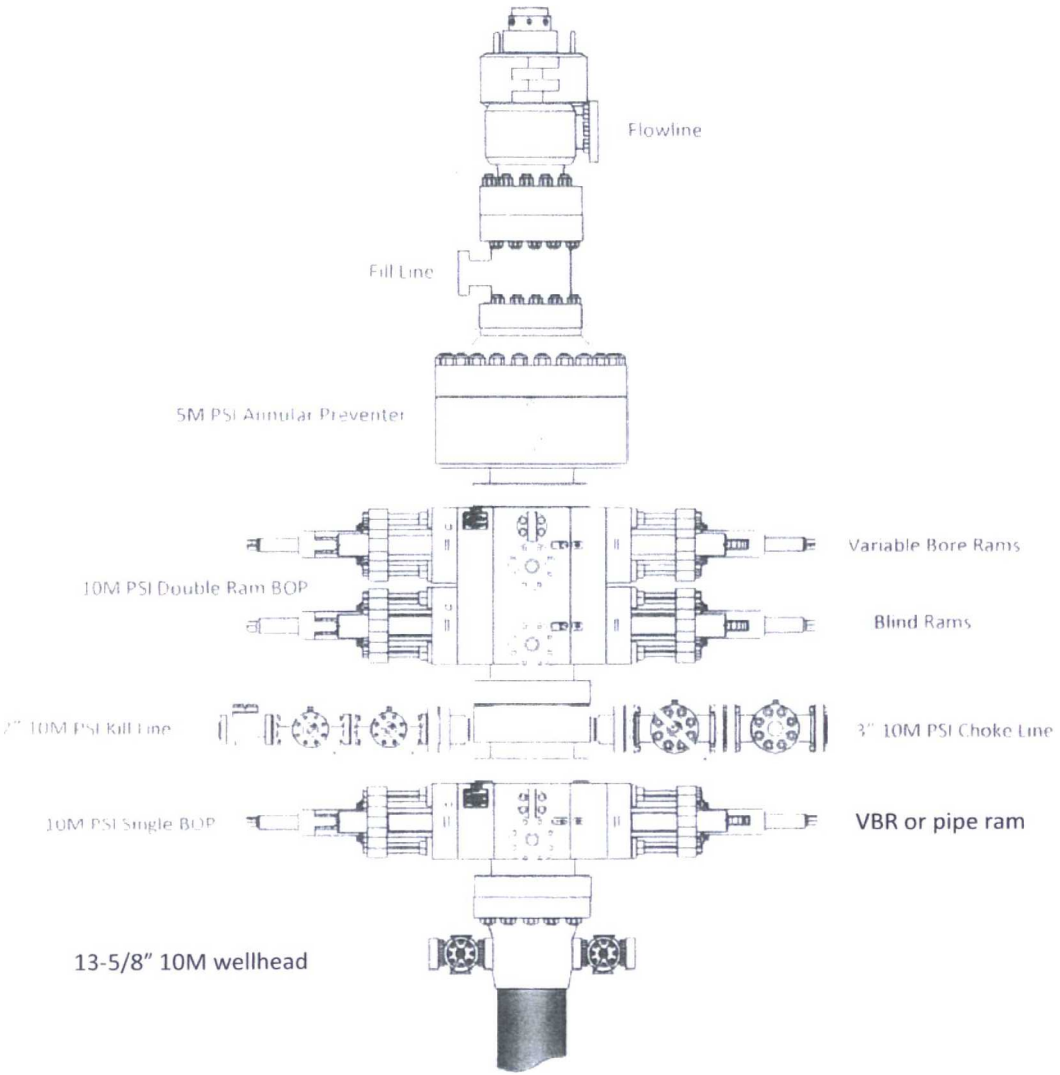
Casing Head- MBS

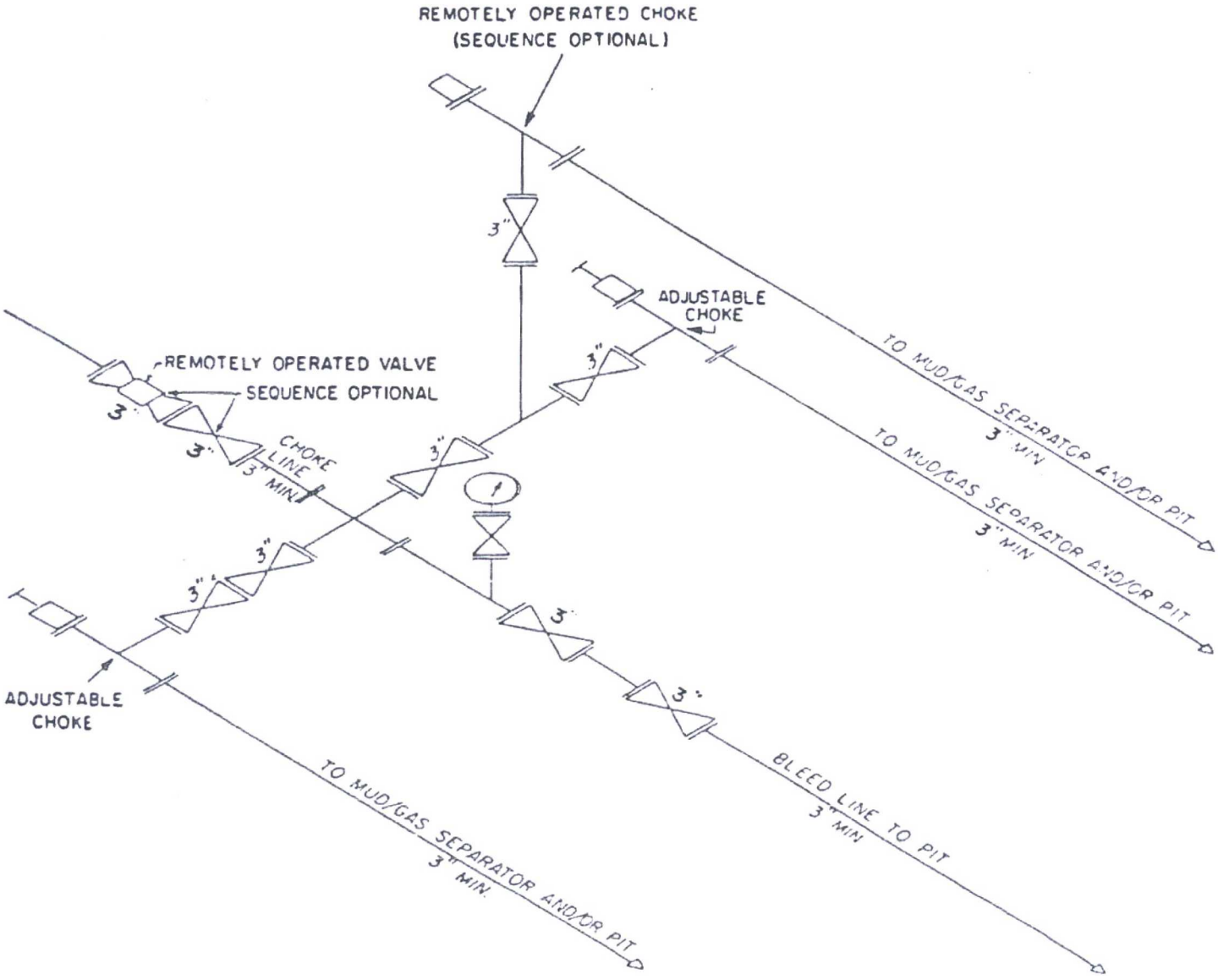
13-5/8"-5M X 13-3/8" SOW

DRILLER'S ZERO 1ft ABOVE ROTARY TABLE



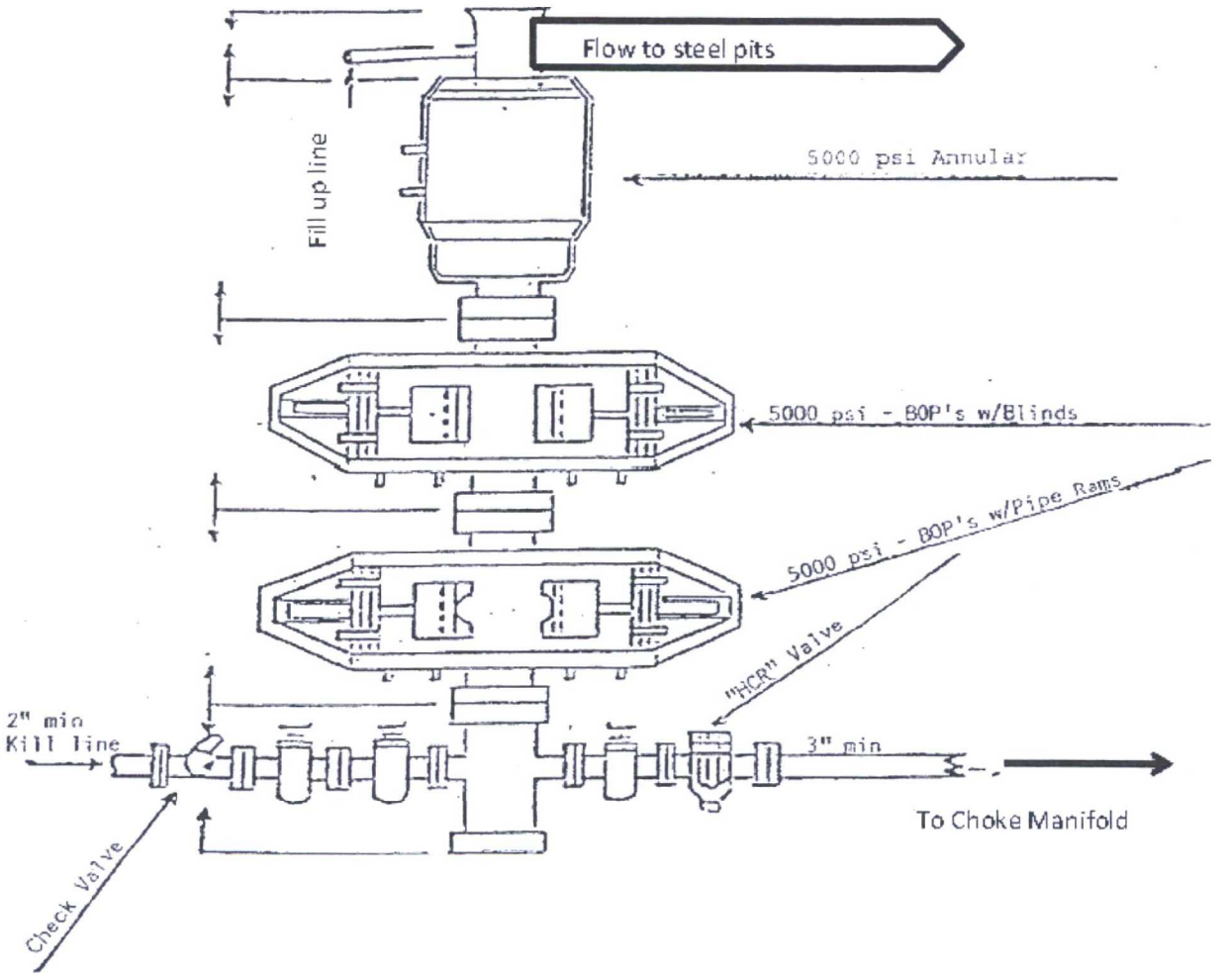
13-5/8" 10M PSI BOP Stack

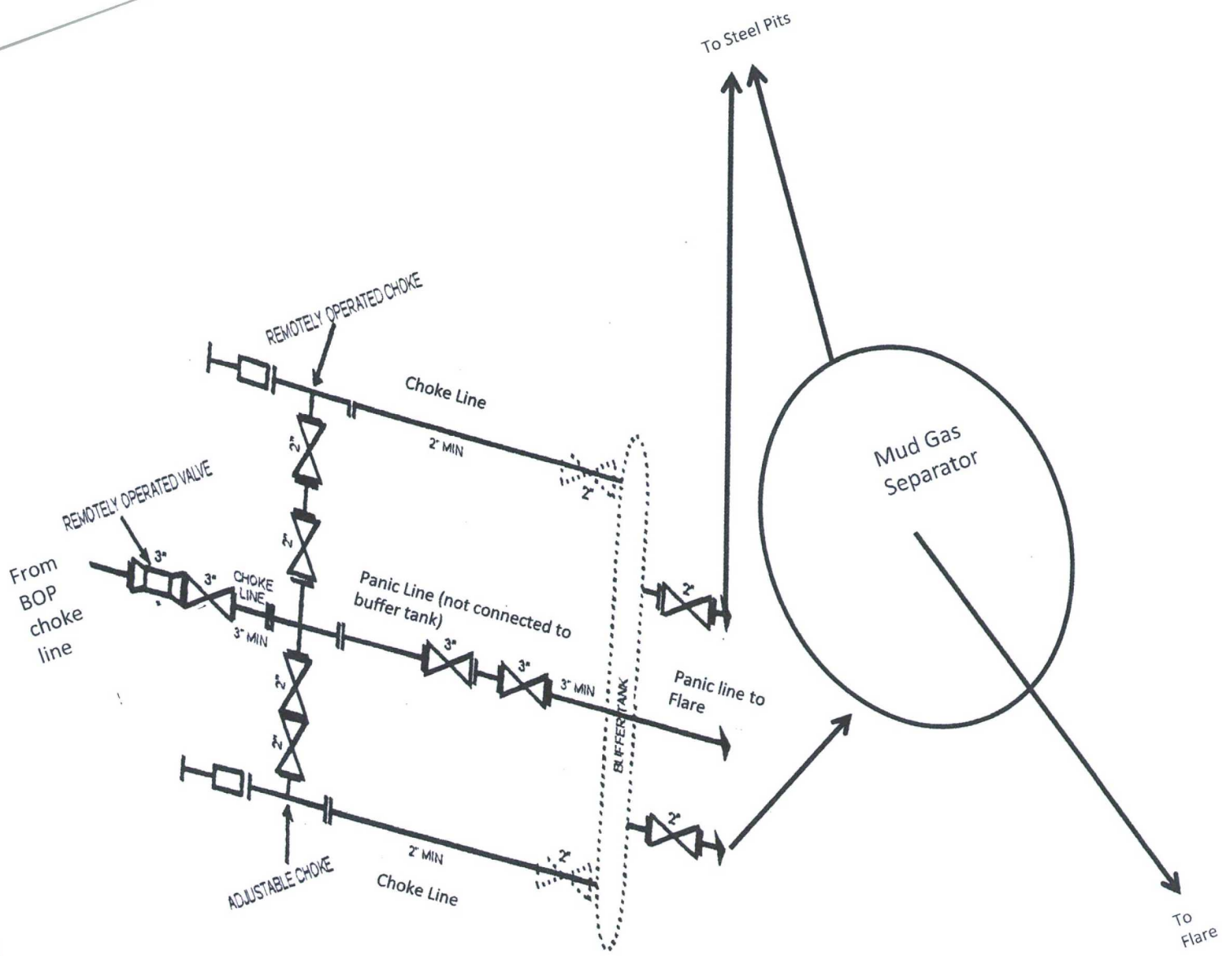




10M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION MAY VARY

13-5/8" 5,000 PSI BOP





5M CHOKE MANIFOLD EQUIPMENT