Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

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 reverse side.

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 JV P 2H

2. Name of Operator
BTA OIL PRODUCERS
Contact: PAM INSKEEP
E-Mail: pinskeep@btaoil.com

9. API Well No.
30-025-41621-00-X1

3a. Address
104 SOUTH PECOS STREET
MIDLAND, TX 79701

3b. Phone No. (include area code)
Ph: 432-682-3753
Fx: 432-683-0325

HOBBS OCD

10. Field and Pool, or Exploratory
RED HILLS

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 10 T25S R33E NENE 190FNL 330FEL
32.151299 N Lat, 103.553319 W Lon

SEP 12 2014

RECEIVED

11. County or Parish, and State
LEA COUNTY, NM

12. CHECK 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	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original A PD
	☐ 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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall 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 respectfully requests the following changes to this APD, as was approved:

Change target depths, as follows:
End of Curve was 9380' TVD - is now 9510' TVD
End of Lateral Curve was 9380' TVD - is now 9500' TVD
Projected Total Depth was 13942' MD 9380 TVD - is now 14079' MD 9500' TVD
Revised Directional Plan is attached

Will drill the vertical/curve from the 9-5/8" intermediate at 5100' (per BLM COA) to End of Curve at 9784' MD/9510' TVD with 8-3/4" hole size instead of 7-7/8".

In the lateral at 9784' MD/9510' TVD, reduce hole size from 8-3/4" to 7-7/8" to TD (14079' MD/9500'

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

Electronic Submission #258085 verified by the BLM Well Information System
For BTA OIL PRODUCERS, sent to the Hobbs
Committed to AFMSS for processing by WESLEY INGRAM on 09/08/2014 (14WWI0143SE)

Name *(Printed/Typed)* PAM INSKEEP — Title REGULATORY ADMINISTRATOR

Signature (Electronic Submission) — Date 08/22/2014

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

APPROVED
SEP 8 2014
/s/ Chris Walls
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Approved By _____ Title _____ Date

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

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.

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

SEP 18 2014

Additional data for EC transaction #258085 that would not fit on the form

32. Additional remarks, continued

TVD).

Production cementing program is adjusted to reflect the increase in drill hole length and changes in cited bit sizes.

Lead: 1960 sx of Econocem H + 0.5% Halad-322 + 5 pps Kol-Seal + 0.25 pps D-Air 7000 + 0.2% HR-601 (11.9 ppg-/14.2 gal/sk/2.51 cf/sk)
Tail: 1000 sx Versacem H + 0.4% GasStop + 0.3% CFR-3 + 1% Salt + 1% HR-601 (14.4 ppg - 5.7 gal/sk 1.24 cf/sk)

Summary of Volume Calculations by Section
Lead: 0'-5100' (inside 9-5/8" intermediate to Surface) 10% Excess
Lead: 580 sx of Econocem H + 0.5% Halad-322 + 5 pps Kol-Seal + 0.25 pps D-Air 7000 + 0.2% HR-601 (11.9 ppg - /14.2 gal/sk/2.51 ck/sk)
Lead: 5100'-9033' (ICP Shoe to KOP - 8-3/4" bit) 40% Excess
Lead: 380 sx of Econocem H + 0.5% Halad-322 + 5 pps Kol-Seal + 0.25 pps D-Air 7000 + 0.2% HR-601 (11.9 ppg - /14.2 gal/sk/2.51 cf/sk)
Tail: 9033' (KOP)-9784' MD (End of Curve) - 8-3/4" Bit 40% Excess
Tail: 155 sx of Versacem H + 0.4% GasStop + 0.3% CFR-3 + 1% Salt + 1% HR-601 (14.4 ppg - 5.7 gal/sk 1.24 cf/sk)
Tail: 9784' MD (End of Curve) to 14079' MD/9500' TVD (Change Bit Size to 7-7/8") 40% Excess
Tail: 845 sx of Versacem H + 0.4% GasStop + 0.3% CFR-3 + 1% Salt + 1% HR-601 (14.4 ppg - 5.7 gal/sk 1.24 cf/sk)

BTA OIL PRODUCERS LLC &

BTA OIL PRODUCERS LLC &

COG Operating LLC

Lea County, NM (NAD27 NME)
9418 JV-P Vaca Draw
2H

OH

Plan: Plan #2

Standard Planning Report

17 August, 2014

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well 2H
Company:	COG Operating LLC	**TVD Reference:**	WELL @ 3432.5usft (Original Well Elev)
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	WELL @ 3432.5usft (Original Well Elev)
Site:	9418 JV-P Vaca Draw	**North Reference:**	Grid
Well:	2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Project Lea County, NM (NAD27 NME)

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site 9418 JV-P Vaca Draw

Site Position:		**Northing:**	419,780.50 usft	**Latitude:**	32° 9' 6.058 N
From:	Map	**Easting:**	741,734.30 usft	**Longitude:**	103° 33' 8.114 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.42 °

Well 2H

Well Position	**+N/-S**	0.0 usft	**Northing:**	419,780.50 usft	**Latitude:**	32° 9' 6.058 N
	+E/-W	0.0 usft	**Easting:**	741,734.30 usft	**Longitude:**	103° 33' 8.114 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	3,414.5 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/24/2013	7.29	60.07	48,347

Design Plan #2

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	180.16

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	
9,032.5	0.00	0.00	9,032.5	0.0	0.0	0.00	0.00	0.00	0.00	
9,783.6	90.13	190.00	9,510.0	-471.3	-83.1	12.00	12.00	0.00	190.00	
10,369.9	90.13	178.28	9,508.6	-1,055.0	-125.3	2.00	0.00	-2.00	-89.97	
14,079.2	90.13	178.28	9,500.0	-4,762.6	-13.7	0.00	0.00	0.00	0.00	PBHL(9418 JVP Vaca

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Site:	9418 JV-P Vaca Draw	North Reference:	Grid
Well:	2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

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Wellbore:	OH		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00
9,032.5	0.00	0.00	9,032.5	0.0	0.0	0.0	0.00	0.00	0.00
KOP - 9032.5' MD 0.00° INC 0.00° AZI									
9,050.0	2.10	190.00	9,050.0	-0.3	-0.1	0.3	12.00	12.00	0.00
9,075.0	5.10	190.00	9,074.9	-1.9	-0.3	1.9	12.00	12.00	0.00
9,100.0	8.10	190.00	9,099.8	-4.7	-0.8	4.7	12.00	12.00	0.00
9,125.0	11.10	190.00	9,124.4	-8.8	-1.6	8.8	12.00	12.00	0.00
9,150.0	14.10	190.00	9,148.8	-14.2	-2.5	14.2	12.00	12.00	0.00
9,175.0	17.10	190.00	9,172.9	-20.8	-3.7	20.8	12.00	12.00	0.00
9,200.0	20.10	190.00	9,196.6	-28.6	-5.0	28.7	12.00	12.00	0.00
9,225.0	23.10	190.00	9,219.8	-37.7	-6.6	37.7	12.00	12.00	0.00
9,250.0	26.10	190.00	9,242.6	-47.9	-8.5	48.0	12.00	12.00	0.00
9,275.0	29.10	190.00	9,264.7	-59.3	-10.5	59.4	12.00	12.00	0.00
9,300.0	32.10	190.00	9,286.2	-71.9	-12.7	71.9	12.00	12.00	0.00
9,325.0	35.10	190.00	9,307.0	-85.5	-15.1	85.5	12.00	12.00	0.00
9,350.0	38.10	190.00	9,327.1	-100.2	-17.7	100.2	12.00	12.00	0.00
9,375.0	41.10	190.00	9,346.4	-115.9	-20.4	115.9	12.00	12.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3432.5usft (Original Well Elev)
Project:	Lea County, NM (NAD27 NME)	MD Reference:	WELL @ 3432.5usft (Original Well Elev)
Site:	9418 JV-P Vaca Draw	North Reference:	Grid
Well:	2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,400.0	44.10	190.00	9,364.8	-132.5	-23.4	132.6	12.00	12.00	0.00
9,425.0	47.10	190.00	9,382.3	-150.1	-26.5	150.2	12.00	12.00	0.00
9,450.0	50.10	190.00	9,398.8	-168.6	-29.7	168.7	12.00	12.00	0.00
9,475.0	53.10	190.00	9,414.3	-187.9	-33.1	188.0	12.00	12.00	0.00
9,500.0	56.10	190.00	9,428.8	-207.9	-36.7	208.0	12.00	12.00	0.00
9,525.0	59.10	190.00	9,442.2	-228.7	-40.3	228.8	12.00	12.00	0.00
9,550.0	62.10	190.00	9,454.5	-250.2	-44.1	250.3	12.00	12.00	0.00
9,575.0	65.10	190.00	9,465.6	-272.2	-48.0	272.4	12.00	12.00	0.00
9,600.0	68.09	190.00	9,475.5	-294.8	-52.0	295.0	12.00	12.00	0.00
9,625.0	71.09	190.00	9,484.2	-317.9	-56.1	318.0	12.00	12.00	0.00
9,650.0	74.09	190.00	9,491.7	-341.4	-60.2	341.5	12.00	12.00	0.00
9,675.0	77.09	190.00	9,497.9	-365.2	-64.4	365.4	12.00	12.00	0.00
9,700.0	80.09	190.00	9,502.9	-389.3	-68.7	389.5	12.00	12.00	0.00
9,725.0	83.09	190.00	9,506.5	-413.7	-72.9	413.9	12.00	12.00	0.00
9,750.0	86.09	190.00	9,508.9	-438.2	-77.3	438.4	12.00	12.00	0.00
9,775.0	89.09	190.00	9,509.9	-462.8	-81.6	463.0	12.00	12.00	0.00
9,783.6	90.13	190.00	9,510.0	-471.3	-83.1	471.6	12.00	12.00	0.00
EOC 9783.6 MD, 90.13° INC, 190.00° AZI									
9,800.0	90.13	189.67	9,510.0	-487.4	-85.9	487.7	2.00	0.00	-2.00
9,900.0	90.13	187.67	9,509.7	-586.3	-101.0	586.6	2.00	0.00	-2.00
10,000.0	90.13	185.67	9,509.5	-685.6	-112.6	685.9	2.00	0.00	-2.00
10,100.0	90.13	183.67	9,509.3	-785.3	-120.7	785.6	2.00	0.00	-2.00
10,200.0	90.13	181.67	9,509.0	-885.1	-125.4	885.5	2.00	0.00	-2.00
10,300.0	90.13	179.67	9,508.8	-985.1	-126.6	985.5	2.00	0.00	-2.00
10,369.9	90.13	178.28	9,508.6	-1,055.0	-125.3	1,055.3	2.00	0.00	-2.00
10,400.0	90.13	178.28	9,508.6	-1,085.1	-124.4	1,085.5	0.00	0.00	0.00
10,500.0	90.13	178.28	9,508.3	-1,185.1	-121.4	1,185.4	0.00	0.00	0.00
10,600.0	90.13	178.28	9,508.1	-1,285.0	-118.4	1,285.4	0.00	0.00	0.00
10,700.0	90.13	178.28	9,507.9	-1,385.0	-115.4	1,385.3	0.00	0.00	0.00
10,800.0	90.13	178.28	9,507.6	-1,484.9	-112.4	1,485.2	0.00	0.00	0.00
10,900.0	90.13	178.28	9,507.4	-1,584.9	-109.4	1,585.2	0.00	0.00	0.00
11,000.0	90.13	178.28	9,507.2	-1,684.8	-106.4	1,685.1	0.00	0.00	0.00
11,100.0	90.13	178.28	9,506.9	-1,784.8	-103.4	1,785.1	0.00	0.00	0.00
11,200.0	90.13	178.28	9,506.7	-1,884.7	-100.3	1,885.0	0.00	0.00	0.00
11,300.0	90.13	178.28	9,506.5	-1,984.7	-97.3	1,985.0	0.00	0.00	0.00
11,400.0	90.13	178.28	9,506.2	-2,084.7	-94.3	2,084.9	0.00	0.00	0.00
11,500.0	90.13	178.28	9,506.0	-2,184.6	-91.3	2,184.9	0.00	0.00	0.00
11,600.0	90.13	178.28	9,505.8	-2,284.6	-88.3	2,284.8	0.00	0.00	0.00
11,700.0	90.13	178.28	9,505.5	-2,384.5	-85.3	2,384.8	0.00	0.00	0.00
11,800.0	90.13	178.28	9,505.3	-2,484.5	-82.3	2,484.7	0.00	0.00	0.00
11,900.0	90.13	178.28	9,505.1	-2,584.4	-79.3	2,584.6	0.00	0.00	0.00
12,000.0	90.13	178.28	9,504.8	-2,684.4	-76.3	2,684.6	0.00	0.00	0.00
12,100.0	90.13	178.28	9,504.6	-2,784.3	-73.3	2,784.5	0.00	0.00	0.00
12,200.0	90.13	178.28	9,504.4	-2,884.3	-70.3	2,884.5	0.00	0.00	0.00
12,300.0	90.13	178.28	9,504.1	-2,984.2	-67.2	2,984.4	0.00	0.00	0.00
12,400.0	90.13	178.28	9,503.9	-3,084.2	-64.2	3,084.4	0.00	0.00	0.00
12,500.0	90.13	178.28	9,503.7	-3,184.2	-61.2	3,184.3	0.00	0.00	0.00
12,600.0	90.13	178.28	9,503.4	-3,284.1	-58.2	3,284.3	0.00	0.00	0.00
12,700.0	90.13	178.28	9,503.2	-3,384.1	-55.2	3,384.2	0.00	0.00	0.00
12,800.0	90.13	178.28	9,503.0	-3,484.0	-52.2	3,484.2	0.00	0.00	0.00
12,900.0	90.13	178.28	9,502.7	-3,584.0	-49.2	3,584.1	0.00	0.00	0.00
13,000.0	90.13	178.28	9,502.5	-3,683.9	-46.2	3,684.0	0.00	0.00	0.00
13,100.0	90.13	178.28	9,502.3	-3,783.9	-43.2	3,784.0	0.00	0.00	0.00
13,200.0	90.13	178.28	9,502.0	-3,883.8	-40.2	3,883.9	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well 2H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3432.5usft (Original Well Elev)
Project:	Lea County, NM (NAD27-NME)	MD Reference:	WELL @ 3432.5usft (Original Well Elev)
Site:	9418 JV-P Vaca Draw	North Reference:	Grid
Well:	2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,300.0	90.13	178.28	9,501.8	-3,983.8	-37.1	3,983.9	0.00	0.00	0.00
13,400.0	90.13	178.28	9,501.6	-4,083.7	-34.1	4,083.8	0.00	0.00	0.00
13,500.0	90.13	178.28	9,501.3	-4,183.7	-31.1	4,183.8	0.00	0.00	0.00
13,600.0	90.13	178.28	9,501.1	-4,283.7	-28.1	4,283.7	0.00	0.00	0.00
13,700.0	90.13	178.28	9,500.9	-4,383.6	-25.1	4,383.7	0.00	0.00	0.00
13,800.0	90.13	178.28	9,500.7	-4,483.6	-22.1	4,483.6	0.00	0.00	0.00
13,900.0	90.13	178.28	9,500.4	-4,583.5	-19.1	4,583.6	0.00	0.00	0.00
14,000.0	90.13	178.28	9,500.2	-4,683.5	-16.1	4,683.5	0.00	0.00	0.00
14,079.2	90.13	178.28	9,500.0	-4,762.6	-13.7	4,762.6	0.00	0.00	0.00
TD at 14079.2 - PBHL(9418 JVP Vaca Draw #2H)									

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
PBHL(9418 JVP Vaca D - plan hits target center - Point	0.00	0.00	9,500.0	-4,762.6	-13.7	415,017.90	741,720.60	32° 8' 18.930 N	103° 33' 8.675 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
9,032.5	9,032.5	0.0	0.0	KOP - 9032.5 'MD, 0.00° INC, 0.00° AZI
9,783.6	9,510.0	-471.3	-83.1	EOC- 9783.6 'MD, 90.13° INC, 190.00° AZI
14,079.2	9,500.0	-1,055.0	-125.3	TD at 14079.2

CONCHO

NEXUS DIRECTIONAL SOLUTIONS, L.P.

BTA OIL PRODUCERS LLC
9418 JV-P Vaca Draw 2H
Lea County, NM (NAD27 NME)
Northing: (Y) 419780.50
Easting: (X) 741734.30
Plan #2

G T M

Azimuths to Grid North
True North: -0.42°
Magnetic North: 6.88°

Magnetic Field
Strength: 48347.1snT
Dip Angle: 60.07°
Date: 9/24/2013
Model: IGRF2010

To convert a Magnetic Direction to a Grid Direction, Add 6.88°
To convert a True Direction to a Grid Direction, Subtract 0.42°

WELL DETAILS:

WELL @ 3432.5usft (Original Well Elev)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	419780.50	741734.30	32° 9' 6.058 N	103° 33' 8.114 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
9032.5	0.00	0.00	9032.5	0.0	0.0	0.00	0.00	0.0	
9783.6	90.13	190.00	9510.0	-471.3	-83.1	12.00	190.00	471.6	
10369.9	90.13	178.28	9508.6	-1055.0	-125.3	2.00	-89.97	1055.3	
14079.2	90.13	178.28	9500.0	-4762.6	-13.7	0.00	0.00	4762.6	PBHL(9418 JVP Vaca Draw #2H)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL(9418 JVP Vaca Draw #2H)	9500.0	-4762.6	-13.7	415017.90	741720.60

LEGEND

Plan #2

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

Local Origin: Well 2H, Grid North

Latitude: 32° 9' 6.058 N
Longitude: 103° 33' 8.114 W

Grid East: 741734.30
Grid North: 419780.50
Scale Factor: 1.000

Geomagnetic Model: IGRF2010
Sample Date: 24-Sep-13
Magnetic Declination: 7.29°
Dip Angle from Horizontal: 60.07°
Magnetic Field Strength: 48347

To convert a Magnetic Direction to a Grid Direction, Add 6.88°
To convert a Magnetic Direction to a True Direction, Add 7.29° East
To convert a True Direction to a Grid Direction, Subtract 0.42°