

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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.

OCD Hobbs

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMLC065863	
2. Name of Operator APACHE CORPORATION		6. If Indian, Allottee or Tribe Name	
3a. Address 303 VETERANS AIRPARK LANE SUITE 3000 MIDLAND, TX 79705		7. If Unit or CA/Agreement, Name and/or No.	
3b. Phone No. (include area code) Ph: 575-748-6958		8. Well Name and No. LUSK DEEP UNIT A 24H	
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 19 T19S R32E NWNW 330FNL 660FWL		9. API Well No. 30-025-40863-00-X1	
		10. Field and Pool, or Exploratory LUSK Bone Spring	
		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 Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original APD
	☐ 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 recompleting 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 recompleting 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.)

COG Operating LLC respectfully requests the following changes to original APD:

CHANGE TVD
FROM: 9200'
TO: 9260'

CHANGE ESTIMATED BHP
FROM: 4025 PSI
TO: 4016 PSI

PLEASE SEE ATTACHED DIRECTIONAL PLAN AND NEW "DRILLING AND OPERATIONS PROGRAM".

14. Thereby certify that the foregoing is true and correct. Electronic Submission #162169 verified by the BLM Well Information System For APACHE CORPORATION, sent to the Hobbs Committed to AFMSS for processing by KURT SIMMONS on 01/07/2013 (13KMS1623SE)	
Name (Printed/Typed) DEBORA WILBOURN	Title DRLG ENGINEERING TECH
Signature (Electronic Submission)	Date 12/10/2012

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By (BLM Approver Not Specified)	Title	Date 01/15/2013
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.		

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 **

KZ JAN 18 2013



A Schlumberger Company

COG Operating LLC

Lea County(NAD27)

Lusk Deep Unit A

#24H

OH

HOBBS OGD

JAN 17 2013

RECEIVED

Plan: Plan #4

Pathfinder X&Y Report

10 December, 2012



Company: COG Operating LLC Project: Lea County (NAD27) Site: Lusk Deep Unit A Well: #24H Wellbore: OH Design: Plan #4		Local Co-ordinate Reference: KB = 18' @ 3587.0 usft KB = 18' @ 3587.0 usft Grid: Minimum Curvature EDM 5000.1 Single User DB	
Project: Lea County (NAD27)		System Datum: Mean Sea Level	
Map System: US State Plane 1927 (Exact solution) Geo Datum: NAD 1927 (NADCON CONUS) Map Zone: New Mexico East 3001			
Site: Lusk Deep Unit A			
Site Position: Northing: 599,927.400 usft Easting: 865,577.000 usft Slot Radius: 13-3/16"	Latitude: 32.648150 Longitude: -103.795390 Grid Convergence: 0.29°		
Well: #24H			
Well Position Northing: 601,385.700 usft Easting: 860,585.500 usft Wellhead Elevation: usft	Latitude: 32.652226 Longitude: -103.811583 Ground Level: 3,569.0 usft		
Wellbore: OH			
Magnetics Model Name: IGRF200510 Sample Date: 7/12/2012 Dip Angle: 60.54 Field Strength: 48,779			
Design Plan #4			
Audit Notes:			
Version:			
Vertical Section: Phase: PLAN Tie On Depth: 0.0 Depth From (TVD) (usft): 0.0 +N-S (usft): 0.0 +E-W (usft): 0.0 Direction: 179.60			
Survey Tool Program Date: 12/10/2012			
From (usft): 0.0 To (usft): 13,661.3 Plan #4 (OH)	Survey (Wellbore)	Tool Name: NS-GYRO-MS Description: North sensing gyrocompassing m/s	

Company: COG Operating LLC Project: Lea County(NAD27) Site: Lusk Deep Unit A Well: #24H Wellbore: OH Design: Plan #4				Local Co-ordinate Reference TVD Reference: KB = 18" @ 3587.0usft MD Reference: KB = 18" @ 3587.0usft North Reference: Grid: Survey Calculation Method: Minimum Curvature Database: EDM 5000.1 Single User Db						
Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	Dleg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,587.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
100.0	0.00	0.00	100.0	-3,487.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
200.0	0.00	0.00	200.0	-3,387.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
300.0	0.00	0.00	300.0	-3,287.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
400.0	0.00	0.00	400.0	-3,187.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
500.0	0.00	0.00	500.0	-3,087.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
600.0	0.00	0.00	600.0	-2,987.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
700.0	0.00	0.00	700.0	-2,887.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
800.0	0.00	0.00	800.0	-2,787.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
900.0	0.00	0.00	900.0	-2,687.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,000.0	0.00	0.00	1,000.0	-2,587.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,100.0	0.00	0.00	1,100.0	-2,487.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,200.0	0.00	0.00	1,200.0	-2,387.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,300.0	0.00	0.00	1,300.0	-2,287.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,400.0	0.00	0.00	1,400.0	-2,187.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,500.0	0.00	0.00	1,500.0	-2,087.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,600.0	0.00	0.00	1,600.0	-1,987.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,700.0	0.00	0.00	1,700.0	-1,887.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,800.0	0.00	0.00	1,800.0	-1,787.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
1,900.0	0.00	0.00	1,900.0	-1,687.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
2,000.0	0.00	0.00	2,000.0	-1,587.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
2,100.0	0.00	0.00	2,100.0	-1,487.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
2,200.0	0.00	0.00	2,200.0	-1,387.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
2,300.0	0.00	0.00	2,300.0	-1,287.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
2,400.0	0.00	0.00	2,400.0	-1,187.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
2,500.0	0.00	0.00	2,500.0	-1,087.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50
2,600.0	0.00	0.00	2,600.0	-987.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50

Company Project Site Well Wellbore Design			COG Operating LLC Lea County (NAD27) Lusk Deep Unit A #24H OH Plan #4			Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Database:					Well #24H KB = 18' @ 3587.0usft KB = 18' @ 3587.0usft Grid: Minimum Curvature EDM 5000:1 Single User Db		
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V/Sec (usft)	D/leg (°/100usft)	Northing (usft)	Easting (usft)			
2,700.0	0.00	0.00	2,700.0	-887.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
2,800.0	0.00	0.00	2,800.0	-787.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
2,900.0	0.00	0.00	2,900.0	-687.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,000.0	0.00	0.00	3,000.0	-587.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,100.0	0.00	0.00	3,100.0	-487.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,200.0	0.00	0.00	3,200.0	-387.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,300.0	0.00	0.00	3,300.0	-287.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,400.0	0.00	0.00	3,400.0	-187.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,500.0	0.00	0.00	3,500.0	-87.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,600.0	0.00	0.00	3,600.0	13.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,700.0	0.00	0.00	3,700.0	113.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,800.0	0.00	0.00	3,800.0	213.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
3,900.0	0.00	0.00	3,900.0	313.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,000.0	0.00	0.00	4,000.0	413.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,100.0	0.00	0.00	4,100.0	513.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,200.0	0.00	0.00	4,200.0	613.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,300.0	0.00	0.00	4,300.0	713.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,400.0	0.00	0.00	4,400.0	813.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,500.0	0.00	0.00	4,500.0	913.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,600.0	0.00	0.00	4,600.0	1,013.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,700.0	0.00	0.00	4,700.0	1,113.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,800.0	0.00	0.00	4,800.0	1,213.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
4,900.0	0.00	0.00	4,900.0	1,313.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
5,000.0	0.00	0.00	5,000.0	1,413.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
5,100.0	0.00	0.00	5,100.0	1,513.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
5,200.0	0.00	0.00	5,200.0	1,613.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			
5,300.0	0.00	0.00	5,300.0	1,713.0	0.0	0.0	0.0	0.00	601,385.70	660,585.50			



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Company		COG Operating LLC		Local Co-ordinate Reference:				Well #24H			
Project		Lea County (NAD27)		TVD Reference				KB = 18' @ 3587.0usft			
Site		Lusk Deep Unit A		MD Reference				KB = 18' @ 3587.0usft			
Well		#24H		North Reference				Grid			
Wellbore		OH		Survey/Calculation Method				Minimum Curvature			
Design		Plan #4		Database				EDM 5000-1 Single User Db			
Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)	
8,100.0	0.00	0.00	8,100.0	4,513.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50	
8,200.0	0.00	0.00	8,200.0	4,613.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50	
8,300.0	0.00	0.00	8,300.0	4,713.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50	
8,400.0	0.00	0.00	8,400.0	4,813.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50	
8,500.0	0.00	0.00	8,500.0	4,913.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50	
8,600.0	0.00	0.00	8,600.0	5,013.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50	
8,700.0	0.00	0.00	8,700.0	5,113.0	0.0	0.0	0.0	0.0	601,385.70	660,585.50	
8,772.5	0.00	0.00	8,772.5	5,185.5	0.0	0.0	0.0	0.0	601,385.70	660,585.50	
8,775.0	0.30	179.60	8,775.0	5,188.0	0.0	0.0	0.0	12.00	601,385.69	660,585.50	
8,800.0	3.30	179.60	8,800.0	5,213.0	-0.8	0.0	0.8	12.00	601,384.91	660,585.51	
8,825.0	6.30	179.60	8,824.9	5,237.9	-2.9	0.0	2.9	12.00	601,382.82	660,585.52	
8,850.0	9.30	179.60	8,849.7	5,262.7	-6.3	0.0	6.3	12.00	601,379.42	660,585.54	
8,875.0	12.30	179.60	8,874.2	5,287.2	-11.0	0.1	11.0	12.00	601,374.74	660,585.58	
8,900.0	15.30	179.60	8,898.5	5,311.5	-16.9	0.1	16.9	12.00	601,368.78	660,585.62	
8,925.0	18.30	179.60	8,922.4	5,335.4	-24.1	0.2	24.1	12.00	601,361.55	660,585.67	
8,950.0	21.30	179.60	8,945.9	5,358.9	-32.6	0.2	32.6	12.00	601,353.09	660,585.73	
8,975.0	24.30	179.60	8,969.0	5,382.0	-42.3	0.3	42.3	12.00	601,343.40	660,585.79	
9,000.0	27.30	179.60	8,991.5	5,404.5	-53.2	0.4	53.2	12.00	601,332.52	660,585.87	
9,025.0	30.30	179.60	9,013.4	5,426.4	-65.2	0.5	65.2	12.00	601,320.48	660,585.95	
9,050.0	33.30	179.60	9,034.6	5,447.6	-78.4	0.5	78.4	12.00	601,307.31	660,586.04	
9,075.0	36.30	179.60	9,055.2	5,468.2	-92.7	0.6	92.7	12.00	601,293.04	660,586.14	
9,100.0	39.30	179.60	9,074.9	5,487.9	-108.0	0.7	108.0	12.00	601,277.72	660,586.25	
9,125.0	42.30	179.60	9,093.8	5,506.8	-124.3	0.9	124.3	12.00	601,261.39	660,586.36	
9,150.0	45.30	179.60	9,111.9	5,524.9	-141.6	1.0	141.6	12.00	601,244.08	660,586.48	
9,175.0	48.30	179.60	9,129.0	5,542.0	-159.8	1.1	159.8	12.00	601,225.86	660,586.61	
9,200.0	51.30	179.60	9,145.1	5,558.1	-178.9	1.2	178.9	12.00	601,206.77	660,586.74	
9,225.0	54.30	179.60	9,160.2	5,573.2	-198.8	1.4	198.8	12.00	601,186.86	660,586.88	

Company: COG Operating LLC		Local Co-ordinate Reference:				Well #24H				
Project: Lea County (NAD27)		TVD Reference:				KB = 18' @ 3587' 0usft				
Site: Lusk Deep Unit A		MD Reference:				KB = 18' @ 3587' 0usft				
Well: #24H		North Reference:				Grid:				
Wellbore: OH		Survey Calculation Method:				Minimum Curvature				
Design: Plan #4		Database:				EDM 5000.1 Single User Db				
Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec. (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
9,250.0	57.30	179.60	9,174.3	5,587.3	-219.5	1.5	219.5	12.00	601,166.19	660,587.02
9,275.0	60.30	179.60	9,187.2	5,600.2	-240.9	1.7	240.9	12.00	601,144.81	660,587.17
9,300.0	63.30	179.60	9,199.1	5,612.1	-262.9	1.8	262.9	12.00	601,122.78	660,587.32
9,325.0	66.30	179.60	9,209.7	5,622.7	-285.5	2.0	285.5	12.00	601,100.16	660,587.48
9,350.0	69.30	179.60	9,219.1	5,632.1	-308.7	2.1	308.7	12.00	601,077.01	660,587.64
9,375.0	72.30	179.60	9,227.4	5,640.4	-332.3	2.3	332.3	12.00	601,053.41	660,587.80
9,400.0	75.30	179.60	9,234.3	5,647.3	-356.3	2.5	356.3	12.00	601,029.40	660,587.97
9,425.0	78.30	179.60	9,240.0	5,653.0	-380.6	2.6	380.6	12.00	601,005.07	660,588.14
9,450.0	81.30	179.60	9,244.5	5,657.5	-405.2	2.8	405.2	12.00	600,980.47	660,588.31
9,475.0	84.30	179.60	9,247.6	5,660.6	-430.0	3.0	430.0	12.00	600,955.67	660,588.48
9,500.0	87.30	179.60	9,249.4	5,662.4	-455.0	3.2	455.0	12.00	600,930.74	660,588.65
9,521.3	89.86	179.60	9,250.0	5,663.0	-476.3	3.3	476.3	12.00	600,909.40	660,588.80
9,600.0	89.86	179.60	9,250.2	5,663.2	-555.0	3.8	555.0	0.00	600,830.75	660,589.35
9,700.0	89.86	179.60	9,250.4	5,663.4	-654.9	4.5	655.0	0.00	600,730.75	660,590.04
9,800.0	89.86	179.60	9,250.6	5,663.6	-754.9	5.2	755.0	0.00	600,630.75	660,590.73
9,900.0	89.86	179.60	9,250.9	5,663.9	-854.9	5.9	855.0	0.00	600,530.76	660,591.43
10,000.0	89.86	179.60	9,251.1	5,664.1	-954.9	6.6	955.0	0.00	600,430.76	660,592.12
10,100.0	89.86	179.60	9,251.4	5,664.4	-1,054.9	7.3	1,055.0	0.00	600,330.76	660,592.81
10,200.0	89.86	179.60	9,251.6	5,664.6	-1,154.9	8.0	1,155.0	0.00	600,230.76	660,593.51
10,300.0	89.86	179.60	9,251.9	5,664.9	-1,254.9	8.7	1,255.0	0.00	600,130.77	660,594.20
10,400.0	89.86	179.60	9,252.1	5,665.1	-1,354.9	9.4	1,355.0	0.00	600,030.77	660,594.89
10,500.0	89.86	179.60	9,252.3	5,665.3	-1,454.9	10.1	1,455.0	0.00	599,930.77	660,595.58
10,600.0	89.86	179.60	9,252.6	5,665.6	-1,554.9	10.8	1,555.0	0.00	599,830.78	660,596.28
10,700.0	89.86	179.60	9,252.8	5,665.8	-1,654.9	11.5	1,655.0	0.00	599,730.78	660,596.97
10,800.0	89.86	179.60	9,253.1	5,666.1	-1,754.9	12.2	1,755.0	0.00	599,630.78	660,597.66
10,900.0	89.86	179.60	9,253.3	5,666.3	-1,854.9	12.9	1,855.0	0.00	599,530.78	660,598.36
11,000.0	89.86	179.60	9,253.5	5,666.5	-1,954.9	13.6	1,955.0	0.00	599,430.79	660,599.05



Company: Project: Site: Well: Wellbore: Design:		COG Operating, LLC (Lea County (NAD27)) Lusk Deep Unit A #24H OH Plan #4		Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Database:				Well #24H KB = 18' @ 3597.0usft KB = 18' @ 3597.0usft Grid: Minimum Curvature EDM 5000.1 Single User Db			
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec. (usft)	Dleg (°/100usft)	Northing (usft)	Easting (usft)	
11,100.0	89.86	179.60	9,253.8	5,666.8	-2,054.9	14.2	2,055.0	0.00	599,330.79	660,598.74	
11,200.0	89.86	179.60	9,254.0	5,667.0	-2,154.9	14.9	2,155.0	0.00	599,230.79	660,600.44	
11,300.0	89.86	179.60	9,254.3	5,667.3	-2,254.9	15.6	2,255.0	0.00	599,130.79	660,601.13	
11,400.0	89.86	179.60	9,254.5	5,667.5	-2,354.9	16.3	2,355.0	0.00	599,030.80	660,601.82	
11,500.0	89.86	179.60	9,254.8	5,667.8	-2,454.9	17.0	2,455.0	0.00	598,930.80	660,602.52	
11,600.0	89.86	179.60	9,255.0	5,668.0	-2,554.9	17.7	2,555.0	0.00	598,830.80	660,603.21	
11,700.0	89.86	179.60	9,255.2	5,668.2	-2,654.9	18.4	2,655.0	0.00	598,730.81	660,603.90	
11,800.0	89.86	179.60	9,255.5	5,668.5	-2,754.9	19.1	2,755.0	0.00	598,630.81	660,604.60	
11,900.0	89.86	179.60	9,255.7	5,668.7	-2,854.9	19.8	2,855.0	0.00	598,530.81	660,605.29	
12,000.0	89.86	179.60	9,256.0	5,669.0	-2,954.9	20.5	2,955.0	0.00	598,430.81	660,605.98	
12,100.0	89.86	179.60	9,256.2	5,669.2	-3,054.9	21.2	3,055.0	0.00	598,330.82	660,606.67	
12,200.0	89.86	179.60	9,256.5	5,669.5	-3,154.9	21.9	3,155.0	0.00	598,230.82	660,607.37	
12,300.0	89.86	179.60	9,256.7	5,669.7	-3,254.9	22.6	3,255.0	0.00	598,130.82	660,608.06	
12,400.0	89.86	179.60	9,256.9	5,669.9	-3,354.9	23.3	3,355.0	0.00	598,030.82	660,608.75	
12,500.0	89.86	179.60	9,257.2	5,670.2	-3,454.9	23.9	3,455.0	0.00	597,930.83	660,609.45	
12,600.0	89.86	179.60	9,257.4	5,670.4	-3,554.9	24.6	3,555.0	0.00	597,830.83	660,610.14	
12,700.0	89.86	179.60	9,257.7	5,670.7	-3,654.9	25.3	3,655.0	0.00	597,730.83	660,610.83	
12,800.0	89.86	179.60	9,257.9	5,670.9	-3,754.9	26.0	3,755.0	0.00	597,630.84	660,611.53	
12,900.0	89.86	179.60	9,258.2	5,671.2	-3,854.9	26.7	3,855.0	0.00	597,530.84	660,612.22	
13,000.0	89.86	179.60	9,258.4	5,671.4	-3,954.9	27.4	3,955.0	0.00	597,430.84	660,612.91	
13,100.0	89.86	179.60	9,258.6	5,671.6	-4,054.9	28.1	4,055.0	0.00	597,330.84	660,613.61	
13,200.0	89.86	179.60	9,258.9	5,671.9	-4,154.9	28.8	4,155.0	0.00	597,230.85	660,614.30	
13,300.0	89.86	179.60	9,259.1	5,672.1	-4,254.9	29.5	4,255.0	0.00	597,130.85	660,614.99	
13,400.0	89.86	179.60	9,259.4	5,672.4	-4,354.8	30.2	4,355.0	0.00	597,030.85	660,615.69	
13,500.0	89.86	179.60	9,259.6	5,672.6	-4,454.8	30.9	4,455.0	0.00	596,930.85	660,616.38	
13,600.0	89.86	179.60	9,259.9	5,672.9	-4,554.8	31.6	4,555.0	0.00	596,830.86	660,617.07	

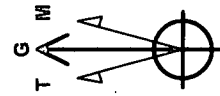
Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #24H
Project:	Lea County (NAD27)	TVD Reference:	KB = 18' @ 3587.0usft
Site:	Lusk Deep Unit A	MD Reference:	KB = 18' @ 3587.0usft
Well:	#24H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #4	Database:	EDM 5000.1 Single User Db

Planned Survey	MD (usft)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	EW (usft)	V/Sec (usft)	D/Leg (°/100usft)	Northing (usft)	Easting (usft)
	13,661.8	89.86	179.60	9,260.0	-4,616.6	32.0	4,616.7	0.00	596,769.10	660,617.50
PBHL (#24H)										

Checked By: _____ Approved By: _____ Date: _____

Azimuths to Grid North
True North: -0.28°
Magnetic North: 7.31°

Magnetic Field
Strength: 48779.2nT
Dip Angle: 60.54°
Date: 7/12/2012
Model: IGRF200510



Project: Lea County(NAD27)
Site: Lusk Deep Unit A
Well: #24H
Wellbore: OH
Plan: Plan #4 (#24H/OH)

PROJECT DETAILS: Lea County(NAD27)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

WELL DETAILS: #24H

Ground Elevation: 3569.0
RKB Elevation: KB = 18' @ 3587.0surf

Rig Name:

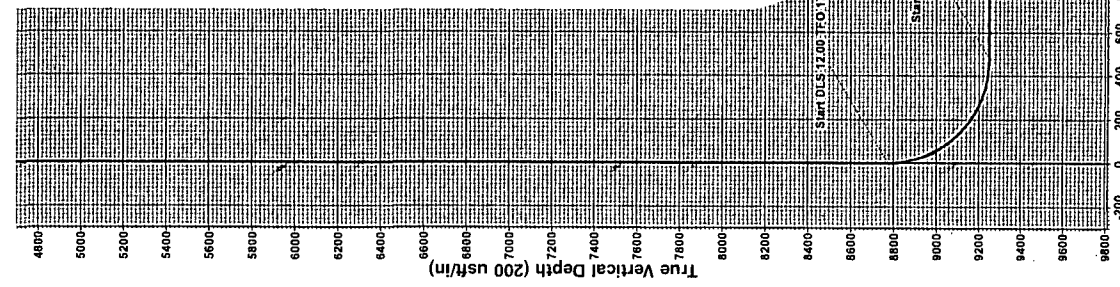
+N/S	+E/W	North	East	Longitude	Latitude	Slot
0.0	0.0	601305.700	665585.500	-102.61183	32.652226	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

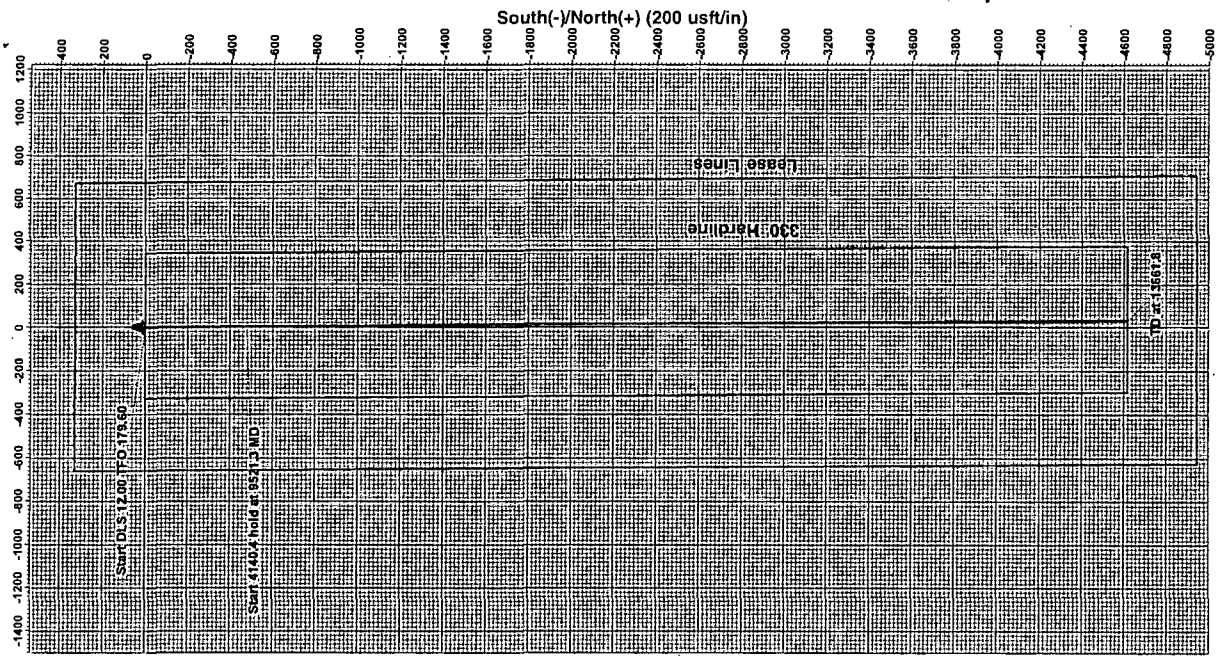
Name	TVD	+N/S	+E/W	North	East	Shape
PBHL (#24H)	9260.0	-4616.6	32.0	595799.100	660617.500	Point

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	
8772.5	0.00	0.00	8772.5	0.0	0.0	0.00	0.00	0.0	
9521.3	89.86	179.60	9250.0	-476.3	3.3	12.00	179.60	476.3	
13561.8	89.86	179.60	9260.0	-4616.6	32.0	0.00	0.00	4616.7	PBHL (#24H)



Vertical Section at 179.60° (200 usft/in)



Plan: Plan #4 (#24H/OH)
Created By: Michael Trout Date: 11/5, December 19 2012
Checked: _____ Date: _____

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