



Caza Petroleum

Lea County
Moore Cowbell "27" State
#1H
OH

RECEIVED

FEB 10 2010
HOBBSOCD

2nd. Lateral Abandoned
SUR: P-27-12s-32e, 660/S & 990/E
BHL: O-27-12s-32e, 596/S & 1982/E
API # 30-025-39404

Survey: MWD #2 Lat

Pathfinder X & Y Survey Report

18 January, 2010

PATHFINDER



Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: Caza Petroleum	Local Co-ordinate Reference: Well #1H
Project: Lea County	TVD Reference: WELL @ 4361.50ft (26.5'KB Correction)
Site: Moore Cowbell "27" State	MD Reference: WELL @ 4361.50ft (26.5'KB Correction)
Well: #1H	North Reference: Grid
Wellbore: OH	Survey Calculation Method: Minimum Curvature
Design: OH	Database: Midland Database

Project Lea County			
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 Moore Cowbell "27" State			
Site Position:	Northing: 816,927.280 ft	Latitude:	33° 14' 38.943 N
From: Map	Easting: 693,692.810 ft	Longitude:	103° 41' 59.313 W
Position Uncertainty: 0.00 ft	Slot Radius: "	Grid Convergence:	0.35 °

Well #1H			
Well Position +N/-S 0.00 ft	Northing: 816,927.280 ft	Latitude:	33° 14' 38.943 N
+E/-W 0.00 ft	Easting: 693,692.810 ft	Longitude:	103° 41' 59.313 W
Position Uncertainty 0.00 ft	Wellhead Elevation: ft	Ground Level:	4,335.00 ft

Wellbore OH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/30/2009	7.90	61.16	49,392

Design OH				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	269.60



Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company:	Caza Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Lea County	TVD Reference:	WELL @ 4361.50ft (26.5'KB Correction)
Site:	Moore Cowbell "27" State	MD Reference:	WELL @ 4361.50ft (26.5'KB Correction)
Well:	#1H	North Reference:	Gnd
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Survey Program		Date 01/15/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
100.00	8,200.00	GYRO (OH)	CB-GYRO-MS	Camera based gyro multishot
8,364.00	9,494.00	MWD #2 Lat (OH)	MWD	MWD - Standard

MD (ft)	Inc (")	Azi (")	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLog ("/100ft)	Northing (ft)	Easting (ft)
8,200.00	1.21	90.20	8,197.67	3,836.17	-123.07	28.20	-27.34	0.00	816,804.21	693,721.01
8,364.00	14.95	272.54	8,359.95	3,998.45	-122.13	8.67	-7.81	9.85	816,805.15	693,701.48
8,395.00	20.14	271.90	8,389.50	4,028.00	-121.77	-0.67	1.52	16.75	816,805.51	693,692.14
8,427.00	24.62	271.43	8,419.08	4,057.58	-121.42	-12.84	13.69	14.01	816,805.86	693,679.97
8,458.00	29.28	270.17	8,446.71	4,085.21	-121.24	-26.89	27.73	15.14	816,806.04	693,665.92
8,490.00	33.85	269.91	8,473.97	4,112.47	-121.23	-43.63	44.48	14.29	816,806.05	693,649.18
8,521.00	37.81	270.19	8,499.10	4,137.60	-121.21	-61.78	62.62	12.79	816,806.07	693,631.03
8,553.00	41.50	270.89	8,523.73	4,162.23	-121.02	-82.19	83.04	11.62	816,806.26	693,610.62
8,584.00	44.93	270.75	8,546.32	4,184.82	-120.71	-103.42	104.26	11.07	816,806.57	693,589.39
8,616.00	49.24	270.25	8,568.10	4,206.60	-120.51	-126.84	127.68	13.52	816,806.77	693,565.97
8,647.00	50.74	271.93	8,588.03	4,226.53	-120.06	-150.58	151.42	6.37	816,807.22	693,542.23
8,678.00	51.35	276.57	8,607.53	4,246.03	-118.27	-174.61	175.43	11.80	816,809.01	693,518.20
8,709.00	53.73	276.85	8,626.38	4,264.88	-115.39	-199.05	199.85	7.71	816,811.89	693,493.76
8,741.00	57.68	276.82	8,644.41	4,282.91	-112.25	-225.29	226.07	12.34	816,815.03	693,467.52
8,773.00	61.38	276.22	8,660.63	4,299.13	-109.12	-252.69	253.44	11.67	816,818.16	693,440.12
8,804.00	63.93	275.39	8,674.87	4,313.37	-106.33	-280.08	280.82	8.56	816,820.95	693,412.73
8,836.00	65.51	275.73	8,688.54	4,327.04	-103.53	-308.88	309.59	5.03	816,823.75	693,383.93
8,868.00	70.52	275.32	8,700.51	4,339.01	-100.68	-338.40	339.10	15.70	816,826.60	693,354.41
8,898.00	75.45	275.19	8,709.29	4,347.79	-98.05	-366.96	367.64	16.44	816,829.23	693,325.85
8,930.00	80.37	275.06	8,715.99	4,354.49	-95.26	-398.12	398.77	15.38	816,832.02	693,294.69



Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company:	Caza Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Lea County	TVD Reference:	WELL @ 4361.50ft (26.5'KB Correction)
Site:	Moore Cowbell "27" State	MD Reference:	WELL @ 4361.50ft (26.5'KB Correction)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Survey											
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)	
8,935.22	81.19	275.04	8,716.83	4,355.33	-94.80	-403.25	403.91	15.66	816,832.48	693,289.56	
TGT0(MC#1H)											
8,962.00	85.38	274.96	8,719.96	4,358.46	-92.48	-429.74	430.37	15.66	816,834.80	693,263.07	
8,993.00	90.66	275.02	8,721.03	4,359.53	-89.79	-460.59	461.21	17.03	816,837.49	693,232.22	
9,025.00	93.21	275.35	8,719.95	4,358.45	-86.90	-492.44	493.04	8.04	816,840.38	693,200.37	
9,057.00	91.98	275.92	8,718.50	4,357.00	-83.76	-524.25	524.82	4.24	816,843.52	693,168.56	
9,089.00	91.63	274.24	8,717.49	4,355.99	-80.93	-556.11	556.66	5.36	816,846.35	693,136.70	
9,120.00	91.45	273.72	8,716.66	4,355.16	-78.78	-587.02	587.56	1.77	816,848.50	693,105.79	
9,145.00	92.24	273.71	8,715.85	4,354.35	-77.16	-611.96	612.48	3.16	816,850.12	693,080.85	
9,177.00	93.02	273.06	8,714.38	4,352.88	-75.27	-643.87	644.38	3.17	816,852.01	693,048.94	
9,208.00	93.25	273.26	8,712.69	4,351.19	-73.57	-674.77	675.27	0.98	816,853.71	693,018.04	
9,240.00	93.02	273.33	8,710.94	4,349.44	-71.73	-706.67	707.16	0.75	816,855.55	692,986.14	
9,272.00	93.20	273.49	8,709.20	4,347.70	-69.83	-738.57	739.04	0.75	816,857.45	692,954.24	
9,304.00	91.90	272.47	8,707.78	4,346.28	-68.17	-770.49	770.95	5.16	816,859.11	692,922.32	
9,335.00	91.17	271.68	8,706.95	4,345.45	-67.05	-801.46	801.91	3.47	816,860.23	692,891.35	
9,367.00	91.23	271.16	8,706.28	4,344.78	-66.25	-833.45	833.89	1.64	816,861.03	692,859.36	
9,399.00	91.62	271.38	8,705.48	4,343.98	-65.54	-865.43	865.86	1.40	816,861.74	692,827.38	
9,430.00	92.01	271.07	8,704.50	4,343.00	-64.88	-896.40	896.84	1.61	816,862.40	692,796.41	
9,462.00	92.46	271.23	8,703.25	4,341.75	-64.24	-928.37	928.80	1.49	816,863.04	692,764.44	
9,494.00	92.75	271.71	8,701.80	4,340.30	-63.42	-960.33	960.75	1.75	816,863.86	692,732.48	
PBHL(DLAT) - PBHL(MC#1H) - TGT1@1960°VS(Mc#1H) - TGT1Dlateral											



Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company:	Caza Petroleum	Local Co-ordinate Reference:	Well #1H
Project:	Lea County	TVD Reference:	WELL @ 4361.50ft (26.5'KB Correction)
Site:	Moore Cowbell "27" State	MD Reference:	WELL @ 4361.50ft (26.5'KB Correction)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Midland Database

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
TGT1@1960VS(Mc#)	0.00	0.00	8,716.50	-76.37	-1,960.00	816,850.910	691,732.810	33° 14' 38.304 N	103° 42' 22.396 W
- survey misses target center by 999.86ft at 9494.00ft MD (8701.80 TVD, -63.42 N, -960.33 E)									
- Point									
TGT1Dlateral	0.00	0.00	8,741.50	-75.65	-1,960.00	816,851.630	691,732.810	33° 14' 38.311 N	103° 42' 22.396 W
- survey misses target center by 1000.53ft at 9494.00ft MD (8701.80 TVD, -63.42 N, -960.33 E)									
- Point									
PBHL(DLAT)	0.00	0.00	8,720.45	-27.95	-3,970.30	816,899.330	689,722.510	33° 14' 38.902 N	103° 42' 46.062 W
- survey misses target center by 3010.24ft at 9494.00ft MD (8701.80 TVD, -63.42 N, -960.33 E)									
- Point									
TGT0(MC#1H)	0.00	0.00	8,678.50	-2.79	-400.00	816,924.490	693,292.810	33° 14' 38.939 N	103° 42' 4.023 W
- survey misses target center by 99.72ft at 8933.88ft MD (8716.62 TVD, -94.92 N, -401.93 E)									
- Point									
PBHL(MC#1H)	0.00	0.00	8,741.00	-27.95	-3,970.30	816,899.330	689,722.510	33° 14' 38.902 N	103° 42' 46.062 W
- survey misses target center by 3010.43ft at 9494.00ft MD (8701.80 TVD, -63.42 N, -960.33 E)									
- Point									

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------