

30-015-39844



Caza
Petroleum

Caza Operating, LLC

Eddy County, NM (NAD 83)

Sec 27-T23S-R27E

Forehand Ranch 27 State Com #1H

Original Wellpath

Design: Original Wellpath

Standard Survey Report

10 November, 2012

PINNACLE
Directional Drilling Specialists, Ltd.

Company:	Caza Operating, LLC	Local Co-ordinate Reference:	Site Sec 27-T23S-R27E
Project:	Eddy County, NM (NAD 83)	TVD Reference:	WELL @ 3179.0usft (Original Well Elev)
Site:	Sec 27-T23S-R27E	MD Reference:	WELL @ 3179.0usft (Original Well Elev)
Well:	Forehand Ranch 27 State Com #1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellpath	Database:	EDM 5000.1 Single User Db

Project	Eddy County, NM (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Sec 27-T23S-R27E		
Site Position:		Northing:	466,546.11 usft
From:	Map	Easting:	590,070.83 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 16' 57.039 N
		Longitude:	104° 10' 32.295 W
		Grid Convergence:	0.08 °

Well	Forehand Ranch 27 State Com #1H		
Well Position	+N/-S	0.0 usft	Northing: 466,546.11 usft
	+E/-W	0.0 usft	Easting: 590,070.83 usft
Position Uncertainty	0.0 usft		Wellhead Elevation: usft
			Latitude: 32° 16' 57.039 N
			Longitude: 104° 10' 32.295 W
			Ground Level: 3,158.0 usft

Wellbore	Original Wellpath		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	2012/10/26	(°)
			7.70
			Dip Angle
			(°)
			60.10
			Field Strength
			(nT)
			48,450

Design	Original Wellpath		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			178.31

Survey Program	Date 2012/11/10		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
100.0	6,700.0	Gyro Surveys (Original Wellpath)	NS-GYRO-MS
6,700.0	11,925.0	MWD Surveys (Original Wellpath)	MWD
			Description
			North sensing gyrocompassing m/s
			MWD - Standard

Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn	
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate	
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.22	51.14	100.0	0.1	0.1	-0.1	0.22	0.22	0.00	
1st Gyro Survey										
200.0	0.30	79.62	200.0	0.3	0.6	-0.3	0.15	0.08	28.48	
300.0	0.73	46.93	300.0	0.8	1.3	-0.7	0.50	0.43	-32.69	
400.0	0.70	39.09	400.0	1.7	2.1	-1.6	0.10	-0.03	-7.84	
500.0	0.72	15.36	500.0	2.8	2.7	-2.7	0.29	-0.02	-23.73	
600.0	0.50	355.53	600.0	3.8	2.8	-3.7	0.30	-0.22	-19.83	
700.0	0.57	355.56	700.0	4.7	2.7	-4.6	0.07	0.07	0.03	
800.0	0.65	351.28	800.0	5.8	2.6	-5.7	0.09	0.08	-4.28	

Company: Caza Operating, LLC
Project: Eddy County, NM (NAD 83)
Site: Sec 27-T23S-R27E
Well: Forehand Ranch 27 State Com #1H
Wellbore: Original Wellpath
Design: Original Wellpath

Local Co-ordinate Reference: Site Sec 27-T23S-R27E
TVD Reference: WELL @ 3179.0usft (Original Well Elev)
MD Reference: WELL @ 3179.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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)
900.0	0.33	12.20	900.0	6.6	2.6	-6.6	0.36	-0.32	20.92
1,000.0	0.24	42.09	1,000.0	7.1	2.8	-7.0	0.17	-0.09	29.89
1,100.0	0.26	51.25	1,100.0	7.4	3.1	-7.3	0.04	0.02	9.16
1,200.0	0.13	52.76	1,200.0	7.6	3.4	-7.5	0.13	-0.13	1.51
1,300.0	0.02	59.05	1,300.0	7.7	3.5	-7.5	0.11	-0.11	6.29
1,400.0	0.43	70.43	1,400.0	7.8	3.9	-7.7	0.41	0.41	11.38
1,500.0	2.06	76.92	1,499.9	8.3	6.0	-8.1	1.63	1.63	6.49
1,600.0	2.03	62.48	1,599.9	9.5	9.3	-9.3	0.51	-0.03	-14.44
1,700.0	2.05	56.66	1,699.8	11.3	12.3	-11.0	0.21	0.02	-5.82
1,800.0	2.63	53.24	1,799.7	13.7	15.7	-13.2	0.60	0.58	-3.42
1,900.0	2.57	39.57	1,899.6	16.8	18.9	-16.2	0.62	-0.06	-13.67
2,000.0	2.01	20.67	1,999.5	20.2	21.0	-19.5	0.93	-0.56	-18.90
2,100.0	1.29	327.84	2,099.5	22.8	21.0	-22.1	1.60	-0.72	-52.83
2,200.0	0.42	262.89	2,199.5	23.7	20.0	-23.1	1.18	-0.87	-64.95
2,300.0	0.23	323.69	2,299.5	23.8	19.6	-23.2	0.37	-0.19	60.80
2,400.0	0.13	268.40	2,399.5	23.9	19.3	-23.4	0.19	-0.10	-55.29
2,500.0	0.03	41.94	2,499.5	24.0	19.2	-23.4	0.15	-0.10	133.54
2,600.0	0.07	81.82	2,599.5	24.0	19.3	-23.4	0.05	0.04	39.88
2,700.0	0.09	76.43	2,699.5	24.0	19.4	-23.4	0.02	0.02	-5.39
2,800.0	0.13	70.29	2,799.5	24.1	19.6	-23.5	0.04	0.04	-6.14
2,900.0	0.08	203.81	2,899.5	24.1	19.7	-23.5	0.19	-0.05	133.52
3,000.0	0.11	173.98	2,999.5	23.9	19.7	-23.3	0.06	0.03	-29.83
3,100.0	0.08	163.35	3,099.5	23.7	19.7	-23.1	0.03	-0.03	-10.63
3,200.0	0.28	131.96	3,199.5	23.5	19.9	-22.9	0.22	0.20	-31.39
3,300.0	0.55	101.92	3,299.5	23.2	20.6	-22.6	0.34	0.27	-30.04
3,400.0	0.53	99.98	3,399.5	23.1	21.5	-22.4	0.03	-0.02	-1.94
3,500.0	0.38	97.48	3,499.5	22.9	22.3	-22.3	0.15	-0.15	-2.50
3,600.0	0.88	103.56	3,599.5	22.7	23.4	-22.0	0.50	0.50	6.08
3,700.0	0.89	113.52	3,699.5	22.2	24.8	-21.5	0.15	0.01	9.96
3,800.0	1.17	82.14	3,799.4	22.1	26.5	-21.3	0.62	0.28	-31.38
3,900.0	0.93	73.08	3,899.4	22.4	28.3	-21.6	0.29	-0.24	-9.06
4,000.0	0.47	53.48	3,999.4	22.9	29.4	-22.0	0.51	-0.46	-19.60
4,100.0	0.57	54.82	4,099.4	23.4	30.2	-22.5	0.10	0.10	1.34
4,200.0	0.50	55.70	4,199.4	24.0	30.9	-23.0	0.07	-0.07	0.88
4,300.0	0.44	68.65	4,299.4	24.4	31.7	-23.4	0.12	-0.06	12.95
4,400.0	0.19	77.77	4,399.4	24.5	32.2	-23.6	0.25	-0.25	9.12
4,500.0	0.03	83.36	4,499.4	24.6	32.4	-23.6	0.16	-0.16	5.59
4,600.0	0.05	134.95	4,599.4	24.5	32.4	-23.6	0.04	0.02	51.59
4,700.0	0.03	299.07	4,699.4	24.5	32.4	-23.6	0.08	-0.02	164.12
4,800.0	0.07	213.94	4,799.4	24.5	32.4	-23.5	0.07	0.04	-85.13
4,900.0	0.09	205.15	4,899.4	24.4	32.3	-23.4	0.02	0.02	-8.79
5,000.0	0.10	175.81	4,999.4	24.2	32.3	-23.2	0.05	0.01	-29.34
5,100.0	0.16	167.78	5,099.4	24.0	32.3	-23.0	0.06	0.06	-8.03

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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)	
5,200.0	0.05	152.14	5,199.4	23.8	32.4	-22.8	0.11	-0.11	-15.64	
5,300.0	0.21	170.57	5,299.4	23.6	32.4	-22.6	0.16	0.16	18.43	
5,400.0	0.31	177.02	5,399.4	23.1	32.5	-22.2	0.10	0.10	6.45	
5,500.0	0.54	203.48	5,499.4	22.4	32.3	-21.5	0.30	0.23	26.46	
5,600.0	0.38	206.77	5,599.4	21.7	31.9	-20.8	0.16	-0.16	3.29	
5,700.0	1.01	208.78	5,699.4	20.6	31.4	-19.7	0.63	0.63	2.01	
5,800.0	1.06	211.68	5,799.4	19.1	30.5	-18.2	0.07	0.05	2.90	
5,900.0	1.47	215.82	5,899.3	17.3	29.2	-16.4	0.42	0.41	4.14	
6,000.0	1.86	215.24	5,999.3	14.9	27.5	-14.1	0.39	0.39	-0.58	
6,100.0	1.53	217.76	6,099.3	12.5	25.8	-11.7	0.34	-0.33	2.52	
6,200.0	0.98	213.79	6,199.2	10.7	24.5	-10.0	0.56	-0.55	-3.97	
6,300.0	0.79	179.04	6,299.2	9.3	24.0	-8.6	0.56	-0.19	-34.75	
6,400.0	0.75	172.22	6,399.2	8.0	24.1	-7.3	0.10	-0.04	-6.82	
6,500.0	1.22	174.94	6,499.2	6.3	24.3	-5.6	0.47	0.47	2.72	
6,600.0	0.60	180.23	6,599.2	4.7	24.4	-4.0	0.63	-0.62	5.29	
6,700.0	0.16	271.93	6,699.2	4.2	24.3	-3.5	0.63	-0.44	91.70	
6,728.0	0.50	190.30	6,727.2	4.1	24.2	-3.4	1.79	1.21	-291.54	
1st MWD Survey										
6,790.0	5.40	192.30	6,789.1	1.0	23.5	-0.3	7.90	7.90	3.23	
6,822.0	5.40	198.20	6,820.9	-2.0	22.7	2.6	1.73	0.00	18.44	
6,853.0	6.80	196.60	6,851.8	-5.1	21.8	5.7	4.55	4.52	-5.16	
6,884.0	9.90	192.70	6,882.4	-9.5	20.7	10.1	10.16	10.00	-12.58	
6,915.0	13.10	187.90	6,912.8	-15.5	19.6	16.1	10.77	10.32	-15.48	
6,946.0	16.40	184.20	6,942.8	-23.4	18.8	23.9	11.07	10.65	-11.94	
6,978.0	18.60	183.20	6,973.3	-33.0	18.2	33.5	6.94	6.88	-3.13	
7,009.0	20.10	182.90	7,002.6	-43.2	17.6	43.7	4.85	4.84	-0.97	
7,041.0	23.20	181.20	7,032.3	-55.0	17.2	55.5	9.88	9.69	-5.31	
7,072.0	26.60	179.80	7,060.4	-68.1	17.1	68.6	11.13	10.97	-4.52	
7,104.0	30.00	178.70	7,088.6	-83.3	17.3	83.7	10.75	10.63	-3.44	
7,135.0	33.30	178.30	7,115.0	-99.5	17.7	100.0	10.67	10.65	-1.29	
7,166.0	36.70	178.60	7,140.4	-117.3	18.2	117.8	10.98	10.97	0.97	
7,197.0	39.80	179.40	7,164.7	-136.5	18.5	137.0	10.13	10.00	2.58	
7,229.0	43.10	179.60	7,188.7	-157.6	18.7	158.1	10.32	10.31	0.63	
7,260.0	46.60	180.10	7,210.6	-179.5	18.8	180.0	11.35	11.29	1.61	
7,292.0	49.80	180.60	7,232.0	-203.4	18.6	203.8	10.07	10.00	1.56	
7,323.0	53.30	180.90	7,251.2	-227.6	18.3	228.1	11.32	11.29	0.97	
7,354.0	56.60	180.40	7,269.1	-253.0	18.0	253.4	10.73	10.65	-1.61	
7,386.0	60.10	180.40	7,285.8	-280.2	17.8	280.6	10.94	10.94	0.00	
7,417.0	63.90	180.00	7,300.4	-307.6	17.7	308.0	12.31	12.26	-1.29	
7,448.0	67.80	179.30	7,313.1	-335.9	17.9	336.3	12.75	12.58	-2.26	
7,480.0	69.80	179.20	7,324.6	-365.7	18.3	366.1	6.26	6.25	-0.31	
7,511.0	71.30	179.50	7,335.0	-394.9	18.6	395.3	4.92	4.84	0.97	
7,542.0	73.90	180.00	7,344.2	-424.5	18.8	424.9	8.53	8.39	1.61	
7,587.0	79.40	180.50	7,354.6	-468.3	18.6	468.6	12.27	12.22	1.11	

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7,651.0	85.50	179.90	7,363.0	-531.7	18.4	532.0	9.58	9.53	-0.94
7,745.0	88.70	178.40	7,367.8	-625.6	19.8	625.9	3.76	3.40	-1.60
7,840.0	90.00	177.60	7,368.9	-720.5	23.1	720.9	1.61	1.37	-0.84
7,934.0	89.60	177.70	7,369.2	-814.4	26.9	814.9	0.44	-0.43	0.11
8,029.0	89.40	178.60	7,370.0	-909.4	30.0	909.8	0.97	-0.21	0.95
8,124.0	89.40	177.60	7,371.0	-1,004.3	33.1	1,004.8	1.05	0.00	-1.05
8,220.0	88.90	176.90	7,372.4	-1,100.2	37.7	1,100.8	0.90	-0.52	-0.73
8,315.0	89.20	177.70	7,374.0	-1,195.1	42.2	1,195.8	0.90	0.32	0.84
8,410.0	89.80	179.50	7,374.8	-1,290.0	44.5	1,290.8	2.00	0.63	1.89
8,505.0	89.80	179.10	7,375.2	-1,385.0	45.7	1,385.8	0.42	0.00	-0.42
8,600.0	89.30	178.50	7,375.9	-1,480.0	47.7	1,480.8	0.82	-0.53	-0.63
8,695.0	88.90	178.60	7,377.4	-1,574.9	50.1	1,575.7	0.43	-0.42	0.11
8,789.0	88.70	179.10	7,379.4	-1,668.9	52.0	1,669.7	0.57	-0.21	0.53
8,885.0	88.70	179.70	7,381.6	-1,764.9	53.0	1,765.7	0.62	0.00	0.63
8,981.0	89.10	180.10	7,383.4	-1,860.9	53.2	1,861.6	0.59	0.42	0.42
9,076.0	89.70	180.50	7,384.4	-1,955.9	52.7	1,956.6	0.76	0.63	0.42
9,171.0	89.10	179.70	7,385.4	-2,050.8	52.5	2,051.5	1.05	-0.63	-0.84
9,265.0	89.00	179.20	7,386.9	-2,144.8	53.4	2,145.5	0.54	-0.11	-0.53
9,360.0	88.40	177.20	7,389.1	-2,239.8	56.4	2,240.4	2.20	-0.63	-2.11
9,455.0	88.60	176.40	7,391.6	-2,334.6	61.7	2,335.4	0.87	0.21	-0.84
9,550.0	88.80	176.90	7,393.7	-2,429.4	67.2	2,430.3	0.57	0.21	0.53
9,645.0	89.00	177.30	7,395.6	-2,524.2	72.0	2,525.3	0.47	0.21	0.42
9,740.0	89.20	177.50	7,397.1	-2,619.1	76.3	2,620.2	0.30	0.21	0.21
9,835.0	89.20	179.20	7,398.4	-2,714.1	79.1	2,715.2	1.79	0.00	1.79
9,930.0	89.30	180.00	7,399.6	-2,809.1	79.7	2,810.2	0.85	0.11	0.84
10,025.0	89.60	179.80	7,400.5	-2,904.1	79.9	2,905.2	0.38	0.32	-0.21
10,120.0	89.00	182.30	7,401.7	-2,999.0	78.2	3,000.0	2.71	-0.63	2.63
10,215.0	88.60	181.70	7,403.7	-3,094.0	74.8	3,094.8	0.76	-0.42	-0.63
10,310.0	88.60	182.30	7,406.0	-3,188.9	71.5	3,189.6	0.63	0.00	0.63
10,405.0	88.90	182.10	7,408.1	-3,283.8	67.9	3,284.3	0.38	0.32	-0.21
10,500.0	90.40	182.60	7,408.7	-3,378.7	64.0	3,379.1	1.66	1.58	0.53
10,594.0	90.50	182.60	7,407.9	-3,472.6	59.7	3,472.8	0.11	0.11	0.00
10,689.0	89.70	184.40	7,407.8	-3,567.4	53.9	3,567.4	2.07	-0.84	1.89
10,784.0	90.40	185.70	7,407.7	-3,662.0	45.6	3,661.8	1.55	0.74	1.37
10,878.0	90.70	186.10	7,406.8	-3,755.5	35.9	3,755.0	0.53	0.32	0.43
10,973.0	90.60	185.90	7,405.7	-3,850.0	26.0	3,849.1	0.24	-0.11	-0.21
11,068.0	90.70	184.70	7,404.6	-3,944.6	17.2	3,943.4	1.27	0.11	-1.26
11,162.0	91.30	185.20	7,403.0	-4,038.2	9.1	4,036.7	0.83	0.64	0.53
11,256.0	92.30	186.30	7,400.0	-4,131.7	-0.3	4,129.9	1.58	1.06	1.17
11,351.0	91.50	186.20	7,396.9	-4,226.1	-10.7	4,223.9	0.85	-0.84	-0.11
11,446.0	90.90	186.80	7,394.9	-4,320.5	-21.4	4,317.9	0.89	-0.63	0.63
11,542.0	91.20	186.90	7,393.1	-4,415.8	-32.9	4,412.9	0.33	0.31	0.10
11,636.0	90.30	185.90	7,391.9	-4,509.2	-43.3	4,505.9	1.43	-0.96	-1.06

Company:	Caza Operating, LLC	Local Co-ordinate Reference:	Site Sec 27-T23S-R27E
Project:	Eddy County, NM. (NAD 83)	TVD Reference:	WELL @ 3179.0usft (Original Well Elev)
Site:	Sec.27-T23S-R27E	MD Reference:	WELL @ 3179.0usft (Original Well Elev)
Well:	Forehand Ranch 27 State Com #1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	Original Wellpath	Database:	EDM 5000.1 Single User Db

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)
11,730.0	90.00	185.40	7,391.7	-4,602.7	-52.6	4,599.2	0.62	-0.32	-0.53
11,825.0	90.20	185.40	7,391.5	-4,697.3	-61.5	4,693.4	0.21	0.21	0.00
11,872.0	90.40	185.50	7,391.2	-4,744.1	-66.0	4,740.1	0.48	0.43	0.21
Last MWD Survey 11872 MD/7391.2 TVD -4744.1 S -66.0 W N: 461802.04 E: 590004.84									
11,906.6	90.40	185.50	7,391.0	-4,778.5	-69.3	4,774.4	0.00	0.00	0.00
Forehand Ranch 27 State Com #1H Plan #1B									
11,916.0	90.40	185.50	7,390.9	-4,787.9	-70.2	4,783.7	0.00	0.00	0.00
Forehand Ranch 27 State Com #1H Plan #2									
11,916.1	90.40	185.50	7,390.9	-4,788.0	-70.2	4,783.8	0.00	0.00	0.00
Forehand Ranch "27" State Com #1H Plan #1C									
11,923.9	90.40	185.50	7,390.9	-4,795.7	-71.0	4,791.5	0.00	0.00	0.00
Forehand Ranch 27 State Com #1H Plan #2A									
11,925.0	90.40	185.50	7,390.9	-4,796.8	-71.1	4,792.6	0.00	0.00	0.00
PTD 11925 MD/7390.9 TVD -4796.8 S -71.1 W N: 461749.29 E: 589999.76									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.0	100.0	0.1	0.1	1st Gyro Survey
6,728.0	6,727.2	4.1	24.2	1st MWD Survey
11,872.0	7,391.2	-4,744.1	-66.0	Last MWD Survey 11872 MD/7391.2 TVD -4744.1 S -66.0 W N: 461802.04 E: 5
11,925.0	7,390.9	-4,796.8	-71.1	PTD 11925 MD/7390.9 TVD -4796.8 S -71.1 W N: 461749.29 E: 589999.76

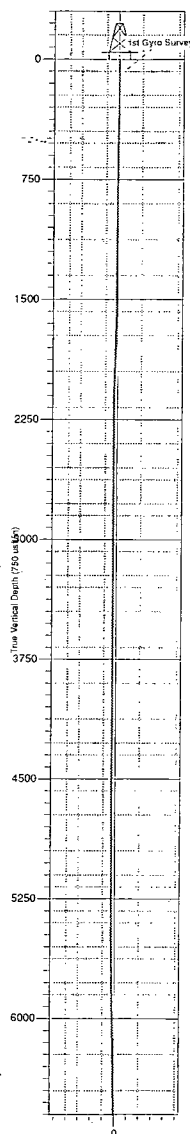
Checked By: _____ Approved By: _____ Date: _____

Survey Interpolation Results

Well Name : Forehand Ranch 27 State Com #1H

Wellbore Name : Original wellpath

MD	INC	AZI	TVD	NS	EW	DLS	VS	MAPN	MAPE	LAT	LONG
11872.0	90.40	185.50	7391.2	-4744.1	-66.0	0.48	4740.1	461802.04		590004.84	32° 16' 10.093 N 104° 10' 33.145 W
11925.0	90.40	185.50	7390.9	-4796.8	-71.1	0.00	4792.6	461749.29		589999.76	32° 16' 9.571 N 104° 10' 33.205 W



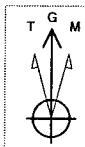
Vertical Section at 178.31° (750 usti/n)



Caza Operating, LLC
 Project: Eddy County, NM (NAD 83)
 Site: Sec 27-T235-R27E
 Well: Forehand Ranch 27 State Com #1H
 Wellbore: Original Wellpath
 Design: Plan #2A
 Lat: 32° 16' 57.039 N
 Long: 104° 10' 32.295 W
 Pad GL: 3158.0
 KB: WELL @ 3179.0usft (Original Well Elev)

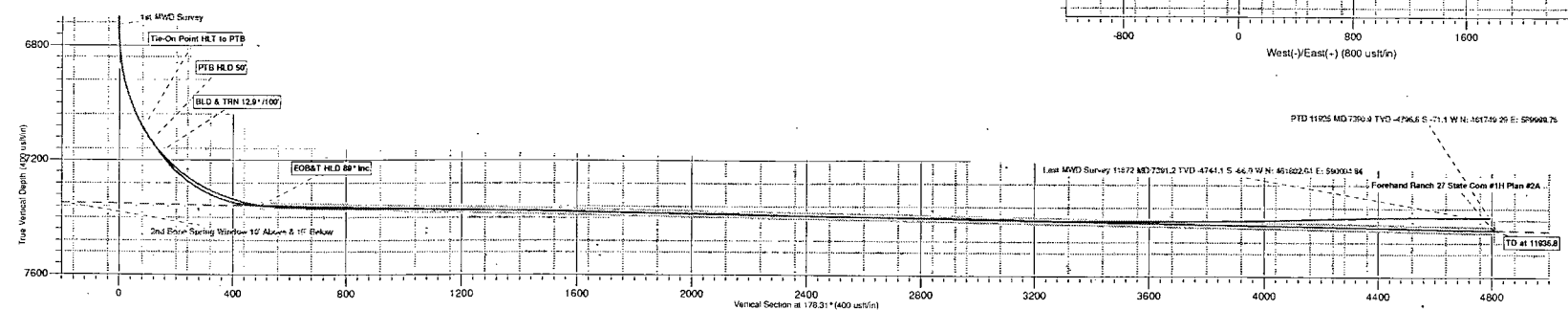
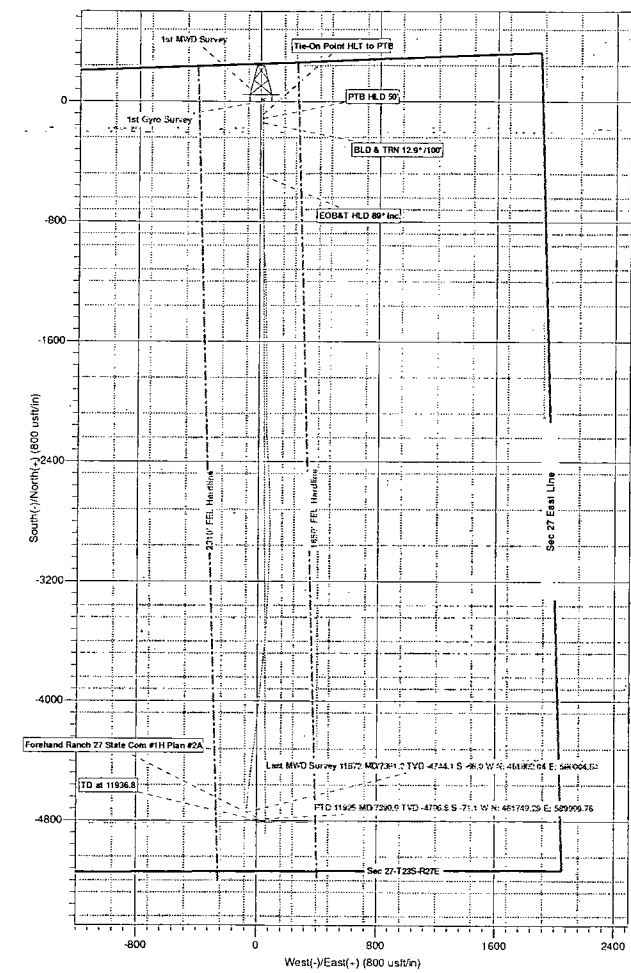


WELL DETAILS: Forehand Ranch 27 State Com #1H											
		Ground Level:		3158.0							
+N/-S	+E/-W	Northing	Eastings	Latitude	Longitude						
0.0	0.0	466546.11	590070.83	32° 16' 57.039 N	104° 10' 32.295 W						
SECTION DETAILS											
MD	Inc	Azi	TVD	+N/-S	+E/-W	Diag	TFace	VSec			
7104.0	30.00	178.70	7088.8	-83.3	17.3	0.00	0.00	83.7			
7157.0	35.47	178.70	7133.1	-111.9	18.0	10.32	0.00	112.4			
7207.0	35.47	178.70	7173.9	-140.9	18.6	0.00	0.00	141.4			
7622.0	89.00	179.49	7360.2	-494.8	23.5	12.90	0.99	495.3			
11936.8	89.00	179.49	7435.8	-4808.8	61.6	0.00	0.00	4808.8			
WELLBORE TARGET DETAILS (LAT/LONG)											
Name	TVD		+N/-S	+E/-W	Latitude	Longitude					
Forehand Ranch 27 State Com #1H Plan #2A	7435.8		-4808.8	61.6	32° 16' 9.451 N	104° 10' 31.860 W					



Azimuths to Grid North
 True North: -0.08°
 Magnetic North: 7.62°
 Magnetic Field
 Strength: 48449.9snT
 Dip Angle: 60.10°
 Date: 2012/10/26
 Model: IGRF2010

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation	
100.0	100.0	0.22	51.14	0.1	0.1	-0.1	0.2	1st Gyro Survey	
6727.2	6728.0	0.50	190.30	4.1	24.2	-3.4	75.1	1st MWD Survey	
7391.2	11872.0	90.40	185.50	-4744.1	-66.0	4740.1	4831.9	Last MWD Survey 11872 MD/7391.2 TVD -4744.1 S -66.0 W N: 461802.04 E: 590004.84	
7390.9	11925.0	90.40	185.50	-4796.8	-71.1	4792.6	4884.9	PTD 11925 MD/7390.9 TVD -4796.8 S -71.1 W N: 461749.29 E: 589999.76	



DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone (575) 393-6181 Fax: (575) 393-0720

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210
Phone (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Rd., 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 and Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to appropriate
District Office

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number		Pool Code	Pool Name
Property Code	Property Name FOREHAND RANCH "27" STATE		Well Number 1H
OGRID No.	Operator Name CAZA OPERATING, LLC.		Elevation 3158'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	27	23 S	27 E		252	NORTH	1900	EAST	EDDY

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
O	27	23 S	27 E		330	SOUTH	1900	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
-----------------	-----------------	--------------------	-----------

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

N 466670.410 E 586807.196	SURFACE LOCATION Lat - N 32°16'57.04" Long - W 104°10'32.30" NMSPEC - N 466546.109 E 590070.832 (NAD-83)	252 1900'	N 466872.418 E 591962.038
OPERATOR CERTIFICATION I hereby certify that the information contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature _____ Date _____ Printed Name _____ Email 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. Date Surveyed _____ Signature _____ Seal of Professional Surveyor 7977 Certificate No. Gary L. Jones 7977			
PROPOSED BOTTOM HOLE LOCATION Lat - N 32°16'09.45" Long - W 104°10'30.73" NMSPEC - N 461737.505 E 590212.581 (NAD-83)			
Last MWD Survey 11872' MD/7391.2 TVD -4744.1 S -66.0 W N: 461802.04 E: 590004.84 395 FSL & 2107 FEL PTD 11925' MD/7390.9 TVD -4796.8 S -71.1 W N: 461749.29 E: 589999.76 343 FSL & 2113 FEL			
N 461389.370 E 586749.976		330 1900'	N 461417.503 E 592122.839
BASIN SURVEYS 25998			

PINNACLE
Directional Drilling Specialists, Ltd.

State of New Mexico
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Attention: Oil and Gas Division

RE: Caza Operating, LLC
Forehand Ranch 27 State Com #1H
Eddy County, New Mexico
API # 30-015-39844

Enclosed, please find the original and one copy of the survey performed on the referenced well by Pinnacle Directional Driller., a division of PINNACLE DRILLING SPECIALISTS. Other information required by your office is as follows:

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
Cory Lindsey MWD Operator	#1	6728'-11872' PTD 11925'	10/28/12-11/10/12	MWD/GAMA

A certified plat on which the bottom hole is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Sincerely,

Christina Myers

Well Planner
Christina Myers

Enclosures: 2

PINNACLE
Directional Drilling Specialists, Ltd.

State of New Mexico
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

RE: Caza Operating, LLC
Forehand Ranch 27 State Com #1H
Eddy County, New Mexico
API # 30-015-39844

I, Cory Lindsey, certify that; I am employed by PINNACLE DIRECTIONAL DRILLING SPECIALISTS, Ltd.; that I did on the days of 10/28/12 through 11/10/12 conduct or supervise the taking of MWD surveys from a depth of 6728' feet to a depth of 11872' feet & PTD of 11925'; that the data is true, correct, complete and within the limitations of the tool as set forth by PINNACLE MWD, a division of PINNACLE DIRECTIONAL DRILLING, Ltd.; that I am authorized and qualified to make this report; that this survey was conducted at the request of CAZA OPERATING, LLC. API#30-015-39844 in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by PINNACLE MWD, a division of PINNACLE DIRECTIONAL DRILLING SPECIALISTS, Ltd.

Cory Lindsey

Cory Lindsey
MWD Operator