

Results of Directional Survey

API number:	30-025-40621		
OGRID:		Operator:	CAZA OPERATING, LLC
		Property:	CAZA RIDGE 14 STATE # 3H

surface	ULSTR:	O	14	T	23S	R	34E
				330	FSL	1980	FEL

BH Loc	ULSTR:	B	14	T	23S	R	34E
15561	MD	11259.5	TVD	374	FNL	2021	FEL
				4916	FSL		

Top Perf/OH	ULSTR:	O	14	T	23S	R	34E
11677	MD	11243.1	TVD	1034	FSL	2048	FEL

Bot Perf/OH	ULSTR:	B	14	T	23S	R	34E
15407	MD	11257.2	TVD	518	FNL	2018	FEL
				4762	FSL		

	MD	N/S	E/W	VD
	11646	673.44	-69.48	11239.32
TOP PERFS/OH	11677	704.19	-68.46	11243.13
	11678	705.18	-68.43	11243.25
	15369	4393.71	-37.32	11257.14
BOT PERFS/OH	15407	4431.70	-37.92	11257.24
	15464	4488.69	-38.81	11257.39

NEXT TO LAST	15509	4533.68	-39.74	11258.25
LAST READING	15561	4585.65	-40.99	11259.52
TD	15561	4585.65	-40.99	11259.52

Surface Location	330	FS	1980	FE
Projected BHL	4916	FS	2021	FE
Location of				
Top Perfs/OH	1034	FS	2048	FE
Bottom Perfs/OH	4762	FS	2018	FE

SUMMARY of Subsurface Locations

Surface Location	O-14-23S-34E	330	FS	1980	FE	Vert. Depth
Top Perfs/OH	O-14-23S-34E	1034	FS	2048	FE	11243.13
Bottom Perfs/OH	B-14-23S-34E	4762	FS	2018	FE	11257.24
Projected TD	B-14-23S-34E	4916	FS	2021	FE	11259.52

DEC 2 0 2012

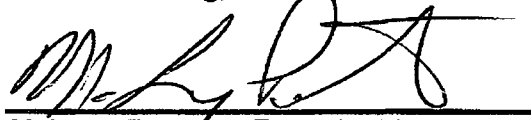
30-025-40621

OPERATOR: Caza Oil & Gas, INC.
 WELL/LEASE: Caza Ridge 14 State # 3 H
 COUNTY: Lea Co., New Mexico
 Sec. 14, T23S, R34E

**STATE OF NEW MEXICO
 DEVIATION REPORT**

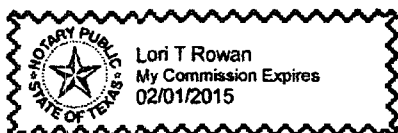
<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
239	1	4,085	2 1/2
448	1/4	4,369	2 1/4
1,205	4 1/4	4,464	2 1/4
1,330	3 1/4	4,559	2
1,395	3	4,653	1 1/2
1,490	2 1/2	4,748	1 1/4
1,584	2 1/2	4,843	1 1/4
1,679	2	4,902	3/4
1,774	2	5,186	1/2
1,964	3/4	5,692	1/4
2,217	1 1/2	6,167	1/2
2,628	3 1/2	6,640	3/4
2,663	3 1/4	7,083	1
2,722	3 1/4	7,557	3/4
2,727	1/2	8,032	1
2,758	2 3/4	8,545	1 1/2
2,795	4 1/4	9,018	2 3/4
2,827	9 1/2	9,112	2 1/2
2,853	3	9,208	3
2,885	3	9,523	1
2,916	3	9,808	1/4
2,948	2 3/4	9,998	1
2,979	2 3/4	10,366	1
3,011	2 1/2	10,541	1 3/4
3,043	2 1/2	10,573	2
3,106	2 1/4	10,604	3 1/2
3,232	1 1/4	10,625	2 3/4
3,327	1 1/2	10,730	3 1/2
2,422	3 1/4	10,777	3 1/2
3,516	4 1/2	10,809	3 1/2
3,611	4 1/4	10,825	3 3/4
3,801	4 1/2	10,857	3 3/4
3,864	5	10,935	4
3,990	4 1/4		

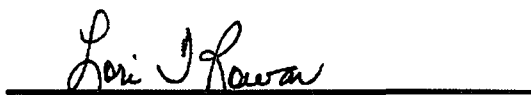
Patriot Drilling, LLC


 M. Leroy Peterson, Executive Vice-
 President

The foregoing instrument was acknowledged before me on this 18th day of October, 2012 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2015




 Lori T. Rowan
 Notary Public for Ector Co., Texas

SUR: O-14-23s-34e, 330/S & 1980/E
 BHL: B-14-23s-34e, 4916/S & 2021/E
 API # 30-025-40621



HOBBS OCD

NOV 08 2012

RECEIVED

Caza Petroleum

Lea County, New Mexico NAD27

Sec 14 T-23S R-34E

Caza Ridge 14 State #3H

Rig: Patriot 4//Job # 1210522

30-025-40621

Design: Rig: Patriot 4//Job # 1210522

Caza Petroleum, Survey Report

05 October, 2012

SUR: O-14-23s-34e, 330/S & 1980/E
BHL: B-14-23s-34e, 4916/S & 2021/E
API # 30-025-40621



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Project	Lea County, New Mexico NAD27		
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	Sec 14 T-23S R-34E				
Site Position:		Northing:	473,335.40 usft	Latitude:	32° 17' 53.3110 N
From:	Map	Easting:	776,583.00 usft	Longitude:	103° 26' 17.5995 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.48 °

Well	Caza Ridge 14 State #3H				
Well Position	+N/-S 0.00 usft	Northing:	473,335.40 usft	Latitude:	32° 17' 53.3110 N
	+E/-W 0.00 usft	Easting:	776,583.00 usft	Longitude:	103° 26' 17.5995 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	21.00 usft	Ground Level:	3,372.40 usft

Wellbore	Rig: Patriot 4//Job # 1210522				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	08/31/12	7.38	60.25	48,555

Design	Rig: Patriot 4//Job # 1210522				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	359.47	



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Survey Program		Date 10/05/12			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	10,791.00	VES Gyro (Rig: Patriot 4//Job # 1210522)	NS-GYRO-MS	North sensing gyrocompassing m/s	
10,791.00	15,561.00	Phoenix MWD Surveys (Rig: Patriot 4//Job	MWD	MWD - Standard	

MD (usft)	Inc (")	Azi (azimuth) (")	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	3,393.40	0.00	0.00	0.00	0.00	0.00	473,335.40	776,583.00
100.00	0.05	240.81	3,293.40	100.00	-0.02	-0.04	-0.02	0.05	473,335.38	776,582.96
200.00	0.13	238.61	3,193.40	200.00	-0.10	-0.17	-0.10	0.08	473,335.30	776,582.83
300.00	0.08	236.56	3,093.40	300.00	-0.20	-0.33	-0.20	0.05	473,335.20	776,582.67
400.00	0.04	241.51	2,993.40	400.00	-0.25	-0.42	-0.25	0.04	473,335.15	776,582.58
500.00	0.31	243.50	2,893.40	500.00	-0.39	-0.69	-0.39	0.27	473,335.01	776,582.31
600.00	0.59	245.49	2,793.40	600.00	-0.73	-1.40	-0.71	0.28	473,334.67	776,581.60
700.00	2.40	240.09	2,693.44	699.96	-1.98	-3.68	-1.95	1.81	473,333.42	776,579.32
800.00	4.22	224.69	2,593.61	799.79	-5.64	-8.09	-5.57	2.01	473,329.76	776,574.91
900.00	4.32	218.55	2,493.89	899.51	-11.21	-13.02	-11.08	0.47	473,324.19	776,569.98
1,000.00	4.42	212.42	2,394.18	999.22	-17.40	-17.43	-17.24	0.48	473,318.00	776,565.57
1,100.00	4.16	210.12	2,294.46	1,098.94	-23.79	-21.32	-23.60	0.31	473,311.61	776,561.68
1,200.00	3.95	207.83	2,194.71	1,198.69	-29.98	-24.75	-29.75	0.27	473,305.42	776,558.25
1,300.00	3.33	212.95	2,094.91	1,298.49	-35.46	-27.94	-35.20	0.70	473,299.94	776,555.06
1,400.00	2.71	218.07	1,995.05	1,398.35	-39.76	-30.97	-39.47	0.68	473,295.64	776,552.03
1,500.00	2.43	223.15	1,895.15	1,498.25	-43.17	-33.88	-42.85	0.36	473,292.23	776,549.12
1,600.00	2.14	228.23	1,795.23	1,598.17	-45.96	-36.72	-45.61	0.35	473,289.44	776,546.28
1,700.00	1.74	240.60	1,695.29	1,698.11	-47.95	-39.44	-47.58	0.58	473,287.45	776,543.56
1,800.00	1.35	252.97	1,595.32	1,798.08	-49.04	-41.89	-48.65	0.51	473,286.36	776,541.11
1,900.00	1.13	275.39	1,495.35	1,898.05	-49.29	-44.00	-48.88	0.53	473,286.11	776,539.00
2,000.00	0.90	297.82	1,395.36	1,998.04	-48.83	-45.67	-48.40	0.45	473,286.57	776,537.33



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
2,100.00	1.04	315.19	1,295.38	2,098.02	-47.82	-47.01	-47.38	0.32	473,287.58	776,535.99	
2,200.00	1.17	332.56	1,195.39	2,198.01	-46.27	-48.12	-45.82	0.36	473,289.13	776,534.88	
2,300.00	1.36	346.87	1,095.42	2,297.98	-44.21	-48.86	-43.75	0.37	473,291.19	776,534.14	
2,400.00	1.55	1.19	995.45	2,397.95	-41.70	-49.10	-41.24	0.41	473,293.70	776,533.90	
2,500.00	2.35	15.49	895.51	2,497.89	-38.37	-48.52	-37.92	0.93	473,297.03	776,534.48	
2,600.00	3.16	24.79	795.62	2,597.78	-33.89	-46.82	-33.46	0.92	473,301.51	776,536.18	
2,700.00	2.91	9.66	695.76	2,697.64	-28.89	-45.24	-28.47	0.84	473,306.51	776,537.76	
2,800.00	2.67	350.54	595.88	2,797.52	-24.09	-45.19	-23.67	0.96	473,311.31	776,537.81	
2,900.00	2.44	334.90	495.98	2,897.42	-19.86	-46.48	-19.43	0.73	473,315.54	776,536.52	
3,000.00	2.22	320.26	396.06	2,997.34	-16.45	-48.62	-16.00	0.63	473,318.95	776,534.38	
3,100.00	1.84	295.16	296.12	3,097.28	-14.27	-51.31	-13.80	0.96	473,321.13	776,531.69	
3,200.00	1.46	270.05	196.16	3,197.24	-13.59	-54.04	-13.09	0.81	473,321.81	776,528.96	
3,300.00	1.92	358.65	96.19	3,297.21	-11.91	-55.35	-11.40	2.38	473,323.49	776,527.65	
3,400.00	2.37	67.25	-3.75	3,397.15	-9.44	-53.49	-8.94	2.45	473,325.96	776,529.51	
3,500.00	3.21	90.51	-103.64	3,497.04	-8.67	-48.78	-8.21	1.39	473,326.73	776,534.22	
3,600.00	4.04	63.77	-203.44	3,596.84	-7.13	-42.82	-6.74	1.86	473,328.27	776,540.18	
3,700.00	4.01	52.20	-303.20	3,696.60	-3.43	-36.90	-3.09	0.81	473,331.97	776,546.10	
3,800.00	3.98	36.63	-402.96	3,796.36	1.50	-32.06	1.79	1.08	473,336.90	776,550.94	
3,900.00	3.94	13.21	-502.73	3,896.13	7.63	-29.21	7.90	1.61	473,343.03	776,553.79	
4,000.00	3.89	7.78	-602.49	3,995.89	14.33	-27.96	14.59	0.37	473,349.73	776,555.04	
4,100.00	2.89	24.42	-702.32	4,095.72	19.99	-26.46	20.23	1.39	473,355.39	776,556.54	
4,200.00	1.88	41.05	-802.23	4,195.63	23.52	-24.34	23.74	1.21	473,358.92	776,558.66	
4,300.00	1.94	42.97	-902.18	4,295.58	26.00	-22.11	26.20	0.09	473,361.40	776,560.89	
4,400.00	1.92	44.88	-1,002.12	4,395.52	28.42	-19.78	28.60	0.07	473,363.82	776,563.22	
4,500.00	1.72	49.08	-1,102.07	4,495.47	30.59	-17.46	30.75	0.24	473,365.99	776,565.54	
4,600.00	1.51	43.28	-1,202.03	4,595.43	32.53	-15.42	32.67	0.27	473,367.93	776,567.58	
4,700.00	1.35	39.51	-1,302.00	4,695.40	34.40	-13.77	34.53	0.19	473,369.80	776,569.23	



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
4,800.00	1.19	31.73	-1,401.97	4,795.37	36.19	-12.47	36.31	0.23	473,371.59	776,570.53	
4,900.00	0.83	34.55	-1,501.96	4,895.36	37.67	-11.52	37.78	0.36	473,373.07	776,571.48	
5,000.00	0.43	43.36	-1,601.95	4,995.35	38.54	-10.85	38.64	0.41	473,373.94	776,572.15	
5,100.00	0.24	73.64	-1,701.95	5,095.35	38.87	-10.39	38.97	0.25	473,374.27	776,572.61	
5,200.00	0.05	103.92	-1,801.95	5,195.35	38.92	-10.15	39.02	0.20	473,374.32	776,572.85	
5,300.00	0.11	142.00	-1,901.95	5,295.35	38.84	-10.04	38.93	0.08	473,374.24	776,572.96	
5,400.00	0.16	150.08	-2,001.95	5,395.35	38.64	-9.92	38.73	0.05	473,374.04	776,573.08	
5,500.00	0.25	158.77	-2,101.95	5,495.35	38.32	-9.77	38.40	0.09	473,373.72	776,573.23	
5,600.00	0.37	162.45	-2,201.95	5,595.35	37.80	-9.59	37.89	0.12	473,373.20	776,573.41	
5,700.00	0.24	167.70	-2,301.95	5,695.35	37.29	-9.45	37.38	0.13	473,372.69	776,573.55	
5,800.00	0.14	177.95	-2,401.95	5,795.35	36.97	-9.40	37.05	0.11	473,372.37	776,573.60	
5,900.00	0.17	195.95	-2,501.95	5,895.35	36.70	-9.44	36.79	0.06	473,372.10	776,573.56	
6,000.00	0.16	213.95	-2,601.94	5,995.34	36.44	-9.56	36.53	0.05	473,371.84	776,573.44	
6,100.00	0.25	237.42	-2,701.94	6,095.34	36.21	-9.82	36.30	0.12	473,371.61	776,573.18	
6,200.00	0.34	260.89	-2,801.94	6,195.34	36.04	-10.29	36.14	0.15	473,371.44	776,572.71	
6,300.00	0.30	244.29	-2,901.94	6,295.34	35.88	-10.82	35.98	0.10	473,371.28	776,572.18	
6,400.00	0.26	247.69	-3,001.94	6,395.34	35.68	-11.27	35.79	0.04	473,371.08	776,571.73	
6,500.00	0.20	252.99	-3,101.94	6,495.34	35.55	-11.65	35.65	0.06	473,370.95	776,571.35	
6,600.00	0.12	248.29	-3,201.94	6,595.34	35.46	-11.91	35.57	0.08	473,370.86	776,571.09	
6,700.00	0.15	244.97	-3,301.94	6,695.34	35.36	-12.13	35.47	0.03	473,370.76	776,570.87	
6,800.00	0.18	211.64	-3,401.94	6,795.34	35.17	-12.33	35.29	0.10	473,370.57	776,570.67	
6,900.00	0.40	207.83	-3,501.94	6,895.34	34.73	-12.57	34.85	0.22	473,370.13	776,570.43	
7,000.00	0.65	204.02	-3,601.93	6,995.33	33.90	-12.97	34.02	0.25	473,369.30	776,570.03	
7,100.00	0.72	211.88	-3,701.93	7,095.33	32.85	-13.53	32.98	0.12	473,368.25	776,569.47	
7,200.00	0.80	219.74	-3,801.92	7,195.32	31.78	-14.31	31.91	0.13	473,367.18	776,568.69	
7,300.00	0.85	207.69	-3,901.91	7,295.31	30.59	-15.10	30.73	0.18	473,365.99	776,567.90	
7,400.00	0.90	195.64	-4,001.89	7,395.29	29.18	-15.65	29.32	0.19	473,364.58	776,567.35	



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
7,500.00	0.95	190.05	-4,101.88	7,495.28	27.60	-16.01	27.75	0.10	473,363.00	776,566.99	
7,600.00	1.00	184.46	-4,201.87	7,595.27	25.92	-16.22	26.07	0.11	473,361.32	776,566.78	
7,700.00	0.97	185.98	-4,301.85	7,695.25	24.21	-16.38	24.36	0.04	473,359.61	776,566.62	
7,800.00	0.87	187.51	-4,401.84	7,795.24	22.61	-16.57	22.76	0.10	473,358.01	776,566.43	
7,900.00	0.88	191.64	-4,501.83	7,895.23	21.11	-16.82	21.26	0.06	473,356.51	776,566.18	
8,000.00	0.88	201.77	-4,601.82	7,995.22	19.64	-17.26	19.80	0.16	473,355.04	776,565.74	
8,100.00	0.79	198.32	-4,701.81	8,095.21	18.27	-17.76	18.44	0.10	473,353.67	776,565.24	
8,200.00	0.70	195.86	-4,801.80	8,195.20	17.03	-18.15	17.20	0.10	473,352.43	776,564.85	
8,300.00	0.67	194.76	-4,901.79	8,295.19	15.88	-18.46	16.05	0.03	473,351.28	776,564.54	
8,400.00	0.65	204.66	-5,001.78	8,395.18	14.80	-18.85	14.97	0.12	473,350.20	776,564.15	
8,500.00	0.97	224.08	-5,101.77	8,495.17	13.67	-19.67	13.86	0.42	473,349.07	776,563.33	
8,600.00	1.29	243.50	-5,201.75	8,595.15	12.56	-21.27	12.76	0.49	473,347.96	776,561.73	
8,700.00	1.39	246.52	-5,301.73	8,695.13	11.58	-23.39	11.79	0.12	473,346.98	776,559.61	
8,800.00	1.49	249.54	-5,401.70	8,795.10	10.64	-25.72	10.88	0.13	473,346.04	776,557.28	
8,900.00	1.73	252.40	-5,501.66	8,895.06	9.73	-28.38	9.99	0.25	473,345.13	776,554.62	
9,000.00	1.97	255.26	-5,601.60	8,995.00	8.84	-31.48	9.13	0.26	473,344.24	776,551.52	
9,100.00	2.29	260.62	-5,701.53	9,094.93	8.07	-35.11	8.40	0.38	473,343.47	776,547.89	
9,200.00	2.60	265.97	-5,801.44	9,194.84	7.59	-39.34	7.95	0.38	473,342.99	776,543.66	
9,300.00	1.66	259.83	-5,901.37	9,294.77	7.17	-43.03	7.57	0.97	473,342.57	776,539.97	
9,400.00	0.71	257.68	-6,001.35	9,394.75	6.78	-45.06	7.20	0.95	473,342.18	776,537.94	
9,500.00	0.69	255.00	-6,101.34	9,494.74	6.50	-46.25	6.92	0.04	473,341.90	776,536.75	
9,600.00	0.68	246.32	-6,201.34	9,594.74	6.10	-47.38	6.54	0.10	473,341.50	776,535.62	
9,700.00	0.40	237.72	-6,301.33	9,694.73	5.68	-48.21	6.12	0.29	473,341.08	776,534.79	
9,800.00	0.32	219.13	-6,401.33	9,794.73	5.27	-48.69	5.72	0.14	473,340.67	776,534.31	
9,900.00	0.42	218.61	-6,501.33	9,894.73	4.77	-49.09	5.23	0.10	473,340.17	776,533.91	
10,000.00	0.71	218.08	-6,601.32	9,994.72	4.00	-49.70	4.46	0.29	473,339.40	776,533.30	
10,100.00	0.51	215.12	-6,701.32	10,094.72	3.15	-50.34	3.61	0.20	473,338.55	776,532.66	



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
10,200.00	0.31	226.15	-6,801.31	10,194.71	2.59	-50.79	3.06	0.21	473,337.99	776,532.21	
10,300.00	0.80	245.51	-6,901.31	10,294.71	2.12	-51.62	2.59	0.52	473,337.52	776,531.38	
10,400.00	1.28	278.87	-7,001.29	10,394.69	2.00	-53.36	2.49	0.75	473,337.40	776,529.64	
10,500.00	1.38	268.63	-7,101.27	10,494.67	2.14	-55.67	2.66	0.26	473,337.54	776,527.33	
10,600.00	1.49	263.40	-7,201.24	10,594.64	1.97	-58.16	2.50	0.17	473,337.37	776,524.84	
10,700.00	2.28	262.82	-7,301.18	10,694.58	1.57	-61.43	2.14	0.79	473,336.97	776,521.57	
10,794.00	16.90	350.80	-7,393.79	10,787.19	14.92	-65.50	15.52	18.05	473,350.32	776,517.50	
10,825.00	18.90	347.50	-7,423.29	10,816.69	24.27	-67.30	24.89	7.23	473,359.67	776,515.70	
10,857.00	21.00	350.30	-7,453.37	10,846.77	34.98	-69.39	35.62	7.21	473,370.38	776,513.61	
10,889.00	24.70	352.90	-7,482.85	10,876.25	47.27	-71.19	47.93	11.98	473,382.67	776,511.81	
10,920.00	28.10	354.60	-7,510.62	10,904.02	60.97	-72.67	61.64	11.23	473,396.37	776,510.33	
10,952.00	31.00	353.70	-7,538.45	10,931.85	76.67	-74.29	77.35	9.17	473,412.07	776,508.71	
10,984.00	34.50	354.30	-7,565.36	10,958.76	93.88	-76.09	94.58	10.98	473,429.28	776,506.91	
11,015.00	36.60	355.90	-7,590.58	10,983.98	111.84	-77.63	112.55	7.41	473,447.24	776,505.37	
11,046.00	39.70	357.50	-7,614.96	11,008.36	130.96	-78.72	131.68	10.50	473,466.36	776,504.28	
11,078.00	43.70	358.20	-7,638.85	11,032.25	152.22	-79.51	152.95	12.58	473,487.62	776,503.49	
11,109.00	48.50	359.20	-7,660.33	11,053.73	174.55	-80.01	175.28	15.66	473,509.95	776,502.99	
11,141.00	53.60	0.30	-7,680.44	11,073.84	199.42	-80.11	200.16	16.16	473,534.82	776,502.89	
11,172.00	57.70	0.70	-7,697.93	11,091.33	225.01	-79.88	225.74	13.27	473,560.41	776,503.12	
11,204.00	63.00	1.00	-7,713.76	11,107.16	252.81	-79.47	253.53	16.58	473,588.21	776,503.53	
11,236.00	67.30	1.00	-7,727.20	11,120.60	281.83	-78.96	282.55	13.44	473,617.23	776,504.04	
11,268.00	68.70	0.30	-7,739.19	11,132.59	311.50	-78.63	312.22	4.82	473,646.90	776,504.37	
11,299.00	70.20	359.60	-7,750.07	11,143.47	340.53	-78.65	341.24	5.28	473,675.93	776,504.35	
11,331.00	71.30	0.20	-7,760.62	11,154.02	370.74	-78.71	371.45	3.87	473,706.14	776,504.29	
11,363.00	71.70	0.20	-7,770.77	11,164.17	401.08	-78.60	401.79	1.25	473,736.48	776,504.40	
11,394.00	72.40	1.30	-7,780.33	11,173.73	430.57	-78.21	431.28	4.06	473,765.97	776,504.79	
11,426.00	72.90	1.00	-7,789.87	11,183.27	461.11	-77.60	461.81	1.80	473,796.51	776,505.40	



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
11,457.00	72.80	1.70	-7,799.01	11,192.41	490.72	-76.90	491.41	2.18	473,826.12	776,506.10
11,489.00	72.40	1.60	-7,808.58	11,201.98	521.25	-76.02	521.93	1.29	473,856.65	776,506.98
11,521.00	73.80	2.30	-7,817.88	11,211.28	551.85	-74.98	552.52	4.85	473,887.25	776,508.02
11,536.00	74.70	2.60	-7,821.96	11,215.36	566.27	-74.36	566.93	6.30	473,901.67	776,508.64
11,584.00	76.20	2.90	-7,834.01	11,227.41	612.67	-72.13	613.32	3.18	473,948.07	776,510.87
11,615.00	78.80	2.50	-7,840.72	11,234.12	642.90	-70.71	643.53	8.48	473,978.30	776,512.29
11,646.00	81.90	2.10	-7,845.92	11,239.32	673.44	-69.48	674.05	10.08	474,008.84	776,513.52
11,678.00	84.00	1.70	-7,849.85	11,243.25	705.18	-68.43	705.78	6.68	474,040.58	776,514.57
11,710.00	84.00	1.50	-7,853.19	11,246.59	736.99	-67.54	737.58	0.62	474,072.39	776,515.46
11,742.00	83.70	1.50	-7,856.62	11,250.02	768.79	-66.71	769.38	0.94	474,104.19	776,516.29
11,773.00	83.30	1.70	-7,860.13	11,253.53	799.58	-65.85	800.16	1.44	474,134.98	776,517.15
11,805.00	84.70	1.30	-7,863.47	11,256.87	831.39	-65.02	831.96	4.55	474,166.79	776,517.98
11,836.00	86.20	1.40	-7,865.93	11,259.33	862.29	-64.29	862.84	4.85	474,197.69	776,518.71
11,867.00	86.60	1.60	-7,867.88	11,261.28	893.21	-63.48	893.76	1.44	474,228.61	776,519.52
11,899.00	88.10	1.50	-7,869.36	11,262.76	925.17	-62.61	925.71	4.70	474,260.57	776,520.39
11,931.00	88.50	1.60	-7,870.31	11,263.71	957.14	-61.75	957.67	1.29	474,292.54	776,521.25
11,963.00	87.90	1.20	-7,871.31	11,264.71	989.12	-60.97	989.64	2.25	474,324.52	776,522.03
11,995.00	89.10	1.00	-7,872.15	11,265.55	1,021.10	-60.35	1,021.61	3.80	474,356.50	776,522.65
12,058.00	90.40	1.40	-7,872.43	11,265.83	1,084.08	-59.03	1,084.58	2.16	474,419.48	776,523.97
12,154.00	89.50	359.90	-7,872.51	11,265.91	1,180.07	-57.95	1,180.56	1.82	474,515.47	776,525.05
12,249.00	88.90	359.50	-7,873.84	11,267.24	1,275.06	-58.44	1,275.55	0.76	474,610.46	776,524.56
12,342.00	89.90	359.50	-7,874.81	11,268.21	1,368.05	-59.25	1,368.54	1.08	474,703.45	776,523.75
12,436.00	89.60	0.00	-7,875.22	11,268.62	1,462.05	-59.66	1,462.54	0.62	474,797.45	776,523.34
12,531.00	91.30	0.70	-7,874.47	11,267.87	1,557.04	-59.08	1,557.52	1.94	474,892.44	776,523.92
12,626.00	88.20	358.10	-7,874.89	11,268.29	1,652.02	-60.08	1,652.50	4.26	474,987.42	776,522.92
12,721.00	91.10	359.20	-7,875.47	11,268.87	1,746.98	-62.32	1,747.48	3.26	475,082.38	776,520.68
12,814.00	90.50	358.80	-7,874.17	11,267.57	1,839.95	-63.94	1,840.46	0.78	475,175.35	776,519.06



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	Northings (usft)	Easting (usft)	
12,909.00	92.30	0.30	-7,871.85	11,265.25	1,934.91	-64.69	1,935.43	2.47	475,270.31	776,518.31	
13,004.00	91.60	3.00	-7,868.62	11,262.02	2,029.81	-61.95	2,030.30	2.93	475,365.21	776,521.05	
13,099.00	90.00	1.60	-7,867.29	11,260.69	2,124.72	-58.14	2,125.17	2.24	475,460.12	776,524.86	
13,194.00	88.60	0.20	-7,868.45	11,261.85	2,219.70	-56.65	2,220.12	2.08	475,555.10	776,526.35	
13,288.00	90.80	1.90	-7,868.94	11,262.34	2,313.67	-54.92	2,314.08	2.96	475,649.07	776,528.08	
13,383.00	90.20	1.00	-7,868.11	11,261.51	2,408.63	-52.52	2,409.02	1.14	475,744.03	776,530.48	
13,476.00	89.90	0.30	-7,868.03	11,261.43	2,501.63	-51.47	2,502.00	0.82	475,837.03	776,531.53	
13,571.00	89.00	359.10	-7,868.94	11,262.34	2,596.62	-51.96	2,596.99	1.58	475,932.02	776,531.04	
13,668.00	88.50	358.90	-7,871.06	11,264.46	2,693.58	-53.66	2,693.96	0.56	476,028.98	776,529.34	
13,762.00	89.50	1.20	-7,872.70	11,266.10	2,787.56	-53.57	2,787.93	2.67	476,122.96	776,529.43	
13,854.00	89.50	1.30	-7,873.50	11,266.90	2,879.53	-51.57	2,879.89	0.11	476,214.93	776,531.43	
13,950.00	91.10	3.50	-7,873.00	11,266.40	2,975.44	-47.55	2,975.75	2.83	476,310.84	776,535.45	
14,044.00	90.80	3.20	-7,871.44	11,264.84	3,069.26	-42.05	3,069.52	0.45	476,404.66	776,540.95	
14,141.00	91.40	1.50	-7,869.58	11,262.98	3,166.16	-38.08	3,166.38	1.86	476,501.56	776,544.92	
14,235.00	90.80	0.30	-7,867.78	11,261.18	3,260.13	-36.60	3,260.33	1.43	476,595.53	776,546.40	
14,329.00	89.70	359.40	-7,867.37	11,260.77	3,354.13	-36.85	3,354.32	1.51	476,689.53	776,546.15	
14,424.00	90.20	359.30	-7,867.45	11,260.85	3,449.12	-37.93	3,449.32	0.54	476,784.52	776,545.07	
14,518.00	89.70	358.60	-7,867.53	11,260.93	3,543.10	-39.65	3,543.32	0.92	476,878.50	776,543.35	
14,613.00	89.60	358.40	-7,868.11	11,261.51	3,638.07	-42.14	3,638.30	0.24	476,973.47	776,540.86	
14,707.00	89.10	357.60	-7,869.18	11,262.58	3,732.00	-45.42	3,732.27	1.00	477,067.40	776,537.58	
14,801.00	88.60	1.00	-7,871.06	11,264.46	3,825.96	-46.56	3,826.23	3.66	477,161.36	776,536.44	
14,896.00	89.60	2.50	-7,872.56	11,265.96	3,920.90	-43.66	3,921.14	1.90	477,256.30	776,539.34	
14,991.00	90.70	1.30	-7,872.31	11,265.71	4,015.85	-40.51	4,016.05	1.71	477,351.25	776,542.49	
15,085.00	91.80	1.10	-7,870.26	11,263.66	4,109.80	-38.55	4,109.99	1.19	477,445.20	776,544.45	
15,179.00	91.60	0.60	-7,867.47	11,260.87	4,203.75	-37.15	4,203.92	0.57	477,539.15	776,545.85	
15,274.00	91.20	0.00	-7,865.15	11,258.55	4,298.72	-36.65	4,298.88	0.76	477,634.12	776,546.35	
15,369.00	90.50	359.20	-7,863.74	11,257.14	4,393.71	-37.32	4,393.87	1.12	477,729.11	776,545.68	



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
15,464.00	89.20	359.00	-7,863.99	11,257.39	4,488.69	-38.81	4,488.86	1.38	477,824.09	776,544.19	
15,509.00	88.60	358.64	-7,864.85	11,258.25	4,533.68	-39.74	4,533.85	1.55	477,869.08	776,543.26	
Last Phoenix MWD Surveys @ 15509' MD											
15,561.00	88.60	358.60	-7,866.12	11,259.52	4,585.65	-40.99	4,585.83	0.08	477,921.05	776,542.01	
Projection to TD @ 15561' MD											

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
15,509.00	11,258.25	4,533.68	-39.74	Last Phoenix MWD Surveys @ 15509' MD	
15,561.00	11,259.52	4,585.65	-40.99	Projection to TD @ 15561' MD	

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

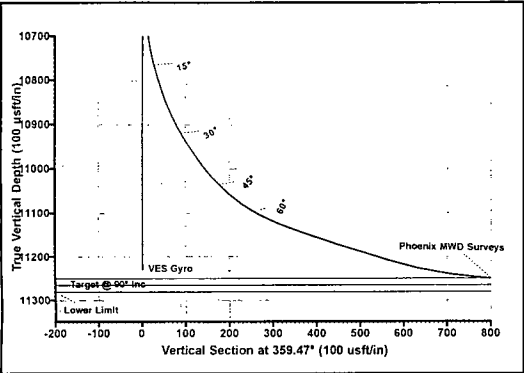
SUR: O-14-23s-34e, 330/S & 1980/E
BHL: B-14-23s-34e, 4916/S & 2021/E
API # 30-025-40621

Caza Petroleum

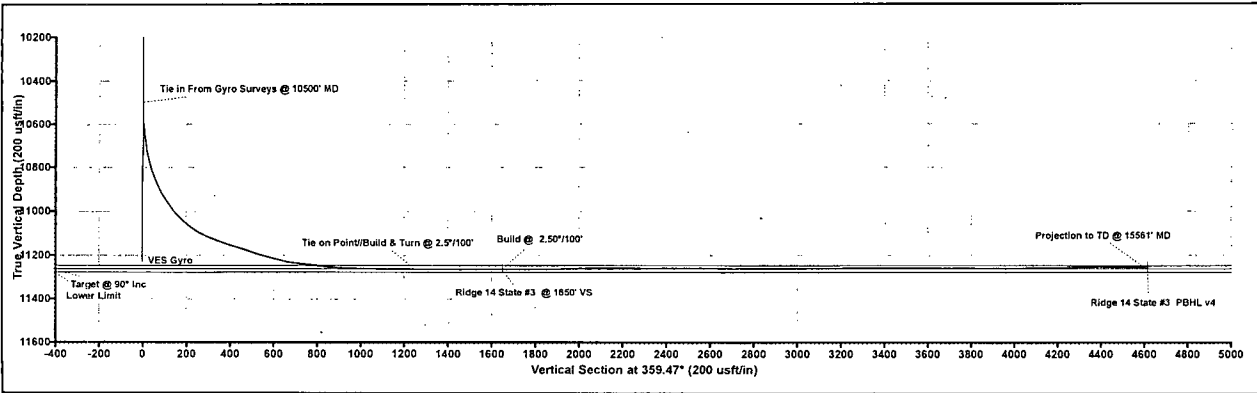
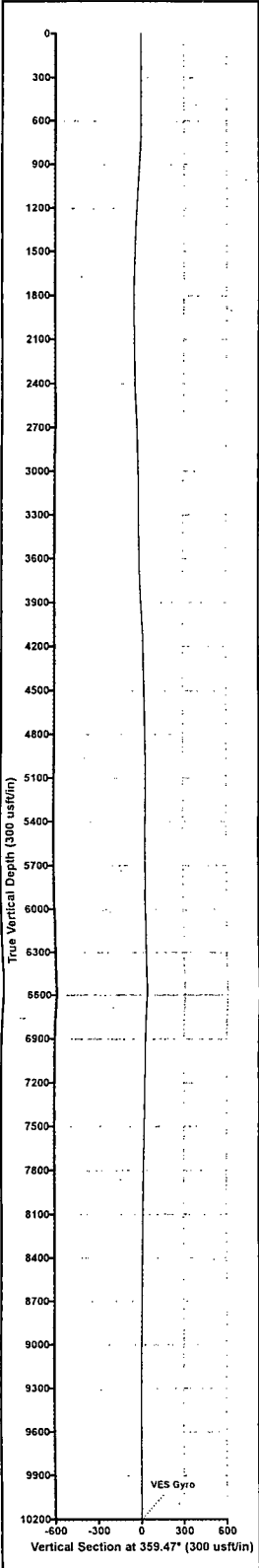
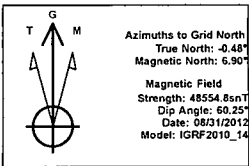
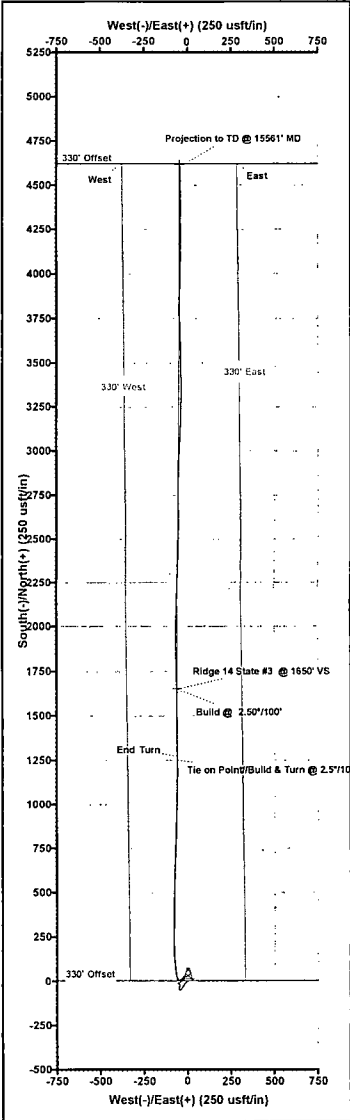
Project: Lea County, New Mexico NAD27
Site: Sec 14 T-23S R-34E
Well: Caza Ridge 14 State #3H
Wellbore: Rig: Patriot 4//Job # 1210522
Plan: Plan 7 10-2-2012

WELL DETAILS: Caza Ridge 14 State #3H			
Ground Level: 3372.40		Latitude	
Northing	Easting	Longitude	
473335.40	776583.00	32° 17' 53.3110 N	103° 26' 17.5995 W

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	
12205.00	85.18	359.69	11265.05	1248.90	-57.79	0.00	0.00	1249.28	
12245.99	90.05	0.22	11265.32	1289.79	-57.62	2.50	31.54	1290.27	
12605.24	90.05	0.22	11265.00	1649.03	-56.43	0.00	0.00	1649.49	Ridge 14 State #3 @ 1550' VS
12611.17	90.19	0.26	11264.99	1654.97	-56.41	2.50	16.77	1655.42	
15571.06	90.19	0.26	11255.00	4614.80	-42.77	0.00	0.00	4615.00	Ridge 14 State #3 PBHL v4



ANNOTATIONS		
TVD	MD	Annotation
11265.05	12205.00	Tie on Point/Build & Turn @ 2.5°/100'
11265.28	12228.08	End Turn
11265.00	12605.27	Build @ 2.50°/100'
11255.00	15571.00	TD @ 15571.08' MD



Created By: Jose Hernandez



Company: Caza Operating, LLC
Lease/Well: Caza Ridge 14 State Com/#3H
Location: SEC14 T23S R34E
Rig Name: Patriot 4
State/County: New Mexico/Lea
Latitude: 32.30, Longitude: -103.44
GRID North is 0.48 Degrees East of True North
VS-Azi: 0.00 Degrees



3D-D25-40621

FIELD COPY ONLY (NOT DEFINITIVE)

Depth Reference : RKB= 21 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut
Minimum Curvature Method
Report Date/Time: 9/12/2012 / 18:46

Vaughn Energy Services
12006 East Highway 158
Gardendale, TX 79758
(432) 563-5444
Surveyor: Colby Ware

HOBBS OCD

NOV 08 2012

RECEIVED

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.05	240.81	100.00	-0.02	-0.03	-0.02	0.04	240.81	0.05
200.00	0.13	238.61	200.00	-0.10	-0.17	-0.10	0.19	239.51	0.09
300.00	0.08	236.56	300.00	-0.20	-0.32	-0.20	0.38	238.70	0.05
400.00	0.04	241.51	400.00	-0.25	-0.41	-0.25	0.48	238.63	0.03
500.00	0.31	243.50	500.00	-0.39	-0.69	-0.39	0.79	240.42	0.26
600.00	0.59	245.49	600.00	-0.72	-1.39	-0.72	1.57	242.60	0.28
700.00	2.40	240.09	699.96	-1.98	-3.68	-1.98	4.18	241.70	1.82
800.00	4.22	224.69	799.79	-5.64	-8.08	-5.64	9.86	235.08	2.01
900.00	4.32	218.55	899.51	-11.20	-13.02	-11.20	17.18	229.29	0.47
1000.00	4.42	212.42	999.22	-17.41	-17.43	-17.41	24.64	225.05	0.48
1100.00	4.16	210.12	1098.94	-23.80	-21.32	-23.80	31.96	221.86	0.31
1200.00	3.95	207.83	1198.69	-29.98	-24.75	-29.98	38.88	219.54	0.27
1300.00	3.33	212.95	1298.49	-35.46	-27.94	-35.46	45.15	218.23	0.70
1400.00	2.71	218.07	1398.35	-39.76	-30.98	-39.76	50.41	217.92	0.67
1500.00	2.43	223.15	1498.25	-43.17	-33.88	-43.17	54.88	218.13	0.37
1600.00	2.14	228.23	1598.17	-45.96	-36.72	-45.96	58.83	218.63	0.35
1700.00	1.74	240.60	1698.11	-47.95	-39.44	-47.95	62.08	219.44	0.57
1800.00	1.35	252.97	1798.08	-49.04	-41.89	-49.04	64.50	220.51	0.51
1900.00	1.13	275.39	1898.05	-49.29	-44.00	-49.29	66.07	221.75	0.53
2000.00	0.90	297.82	1998.04	-48.83	-45.67	-48.83	66.86	223.09	0.45
2100.00	1.04	315.19	2098.02	-47.82	-47.01	-47.82	67.06	224.51	0.32
2200.00	1.17	332.56	2198.00	-46.27	-48.11	-46.27	66.76	226.12	0.36
2300.00	1.36	346.87	2297.98	-44.21	-48.86	-44.21	65.89	227.86	0.37
2400.00	1.55	1.19	2397.95	-41.71	-49.10	-41.71	64.42	229.65	0.41
2500.00	2.35	15.49	2497.89	-38.38	-48.52	-38.38	61.87	231.66	0.94
2600.00	3.16	24.79	2597.77	-33.90	-46.82	-33.90	57.80	234.09	0.92

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
2700.00	2.91	9.66	2697.64	-28.89	-45.24	-28.89	53.67	237.43	0.84
2800.00	2.67	350.54	2797.52	-24.09	-45.19	-24.09	51.21	241.94	0.96
2900.00	2.44	334.90	2897.42	-19.87	-46.48	-19.87	50.55	246.85	0.73
3000.00	2.22	320.26	2997.34	-16.45	-48.62	-16.45	51.33	251.30	0.63
3100.00	1.84	295.16	3097.28	-14.28	-51.31	-14.28	53.26	254.44	0.96
3200.00	1.46	270.05	3197.24	-13.60	-54.03	-13.60	55.72	255.87	0.81
3300.00	1.92	358.65	3297.21	-11.93	-55.34	-11.93	56.62	257.84	2.38
3400.00	2.37	67.25	3397.15	-9.45	-53.47	-9.45	54.30	259.97	2.45
3500.00	3.21	90.51	3497.04	-8.68	-48.77	-8.68	49.53	259.91	1.39
3600.00	4.04	63.77	3596.84	-7.15	-42.81	-7.15	43.40	260.52	1.86
3700.00	4.01	52.20	3696.60	-3.45	-36.89	-3.45	37.05	264.66	0.81
3800.00	3.98	36.63	3796.36	1.48	-32.06	1.48	32.09	272.64	1.08
3900.00	3.94	13.21	3896.13	7.60	-29.20	7.60	30.18	284.60	1.61
4000.00	3.89	7.78	3995.89	14.31	-27.96	14.31	31.41	297.11	0.37
4100.00	2.89	24.42	4095.72	19.97	-26.46	19.97	33.15	307.04	1.40
4200.00	1.88	41.05	4195.63	23.50	-24.34	23.50	33.83	313.99	1.21
4300.00	1.94	42.97	4295.58	25.97	-22.11	25.97	34.11	319.59	0.09
4400.00	1.92	44.88	4395.52	28.40	-19.77	28.40	34.60	325.16	0.07
4500.00	1.72	49.08	4495.47	30.57	-17.45	30.57	35.20	330.28	0.24
4600.00	1.51	43.28	4595.43	32.51	-15.41	32.51	35.98	334.64	0.26
4700.00	1.35	39.51	4695.40	34.39	-13.76	34.39	37.04	338.20	0.19
4800.00	1.19	31.73	4795.37	36.18	-12.46	36.18	38.27	341.00	0.24
4900.00	0.83	34.55	4895.36	37.67	-11.50	37.67	39.38	343.02	0.37
5000.00	0.43	43.36	4995.35	38.53	-10.83	38.53	40.03	344.30	0.41
5100.00	0.24	73.64	5095.35	38.86	-10.38	38.86	40.23	345.05	0.25
5200.00	0.05	103.92	5195.35	38.91	-10.13	38.91	40.21	345.41	0.20
5300.00	0.11	142.00	5295.35	38.83	-10.03	38.83	40.10	345.52	0.07
5400.00	0.16	150.08	5395.35	38.63	-9.90	38.63	39.88	345.62	0.06
5500.00	0.25	158.77	5495.35	38.31	-9.75	38.31	39.53	345.72	0.10
5600.00	0.37	162.45	5595.35	37.80	-9.58	37.80	38.99	345.78	0.11
5700.00	0.24	167.70	5695.35	37.28	-9.43	37.28	38.46	345.80	0.13
5800.00	0.14	177.95	5795.35	36.95	-9.38	36.95	38.13	345.75	0.11
5900.00	0.17	195.95	5895.35	36.69	-9.42	36.69	37.88	345.60	0.06
6000.00	0.16	213.95	5995.34	36.43	-9.54	36.43	37.66	345.33	0.05
6100.00	0.25	237.42	6095.34	36.20	-9.80	36.20	37.50	344.85	0.12
6200.00	0.34	260.89	6195.34	36.04	-10.28	36.04	37.47	344.08	0.15
6300.00	0.30	244.29	6295.34	35.88	-10.80	35.88	37.47	343.24	0.10
6400.00	0.26	247.69	6395.34	35.68	-11.25	35.68	37.41	342.50	0.04
6500.00	0.20	252.99	6495.34	35.54	-11.63	35.54	37.39	341.89	0.06
6600.00	0.12	248.29	6595.34	35.45	-11.89	35.45	37.39	341.46	0.08
6700.00	0.15	244.97	6695.34	35.36	-12.11	35.36	37.37	341.10	0.03
6800.00	0.18	211.64	6795.34	35.17	-12.30	35.17	37.26	340.72	0.10
6900.00	0.40	207.83	6895.34	34.73	-12.55	34.73	36.92	340.13	0.23
7000.00	0.65	204.02	6995.33	33.89	-12.95	33.89	36.28	339.10	0.25
7100.00	0.72	211.88	7095.33	32.84	-13.51	32.84	35.51	337.64	0.11
7200.00	0.80	219.74	7195.32	31.77	-14.29	31.77	34.83	335.78	0.13
7300.00	0.85	207.69	7295.31	30.57	-15.08	30.57	34.09	333.74	0.18
7400.00	0.90	195.64	7395.29	29.16	-15.64	29.16	33.09	331.79	0.19

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
7500.00	0.95	190.05	7495.28	27.58	-16.00	27.58	31.89	329.89	0.10
7600.00	1.00	184.46	7595.27	25.89	-16.21	25.89	30.55	327.95	0.11
7700.00	0.97	185.98	7695.25	24.18	-16.37	24.18	29.20	325.91	0.04
7800.00	0.87	187.51	7795.24	22.58	-16.55	22.58	28.00	323.76	0.10
7900.00	0.88	191.64	7895.23	21.08	-16.81	21.08	26.96	321.43	0.06
8000.00	0.88	201.77	7995.22	19.62	-17.25	19.62	26.12	318.69	0.15
8100.00	0.79	198.32	8095.21	18.25	-17.75	18.25	25.46	315.81	0.10
8200.00	0.70	195.86	8195.20	17.01	-18.13	17.01	24.86	313.18	0.09
8300.00	0.67	194.76	8295.19	15.86	-18.45	15.86	24.33	310.69	0.03
8400.00	0.65	204.66	8395.18	14.77	-18.83	14.77	23.94	308.11	0.12
8500.00	0.97	224.08	8495.17	13.65	-19.66	13.65	23.93	304.78	0.42
8600.00	1.29	243.50	8595.15	12.54	-21.25	12.54	24.67	300.55	0.49
8700.00	1.39	246.52	8695.13	11.56	-23.37	11.56	26.07	296.32	0.12
8800.00	1.49	249.54	8795.10	10.62	-25.70	10.62	27.81	292.46	0.13
8900.00	1.73	252.40	8895.06	9.71	-28.36	9.71	29.97	288.90	0.25
9000.00	1.97	255.26	8995.00	8.81	-31.47	8.81	32.68	285.65	0.26
9100.00	2.29	260.62	9094.93	8.05	-35.10	8.05	36.01	282.91	0.37
9200.00	2.60	265.97	9194.84	7.56	-39.34	7.56	40.06	280.88	0.39
9300.00	1.66	259.83	9294.77	7.15	-43.03	7.15	43.62	279.43	0.97
9400.00	0.71	257.68	9394.75	6.76	-45.06	6.76	45.56	278.53	0.95
9500.00	0.69	255.00	9494.74	6.47	-46.25	6.47	46.70	277.97	0.04
9600.00	0.68	246.32	9594.74	6.08	-47.37	6.08	47.76	277.31	0.11
9700.00	0.40	237.72	9694.73	5.65	-48.21	5.65	48.54	276.69	0.29
9800.00	0.32	219.13	9794.73	5.25	-48.68	5.25	48.96	276.16	0.14
9900.00	0.42	218.61	9894.73	4.75	-49.08	4.75	49.31	275.53	0.10
10000.00	0.71	218.08	9994.72	3.98	-49.69	3.98	49.85	274.57	0.30
10100.00	0.51	215.12	10094.72	3.12	-50.34	3.12	50.43	273.54	0.20
10200.00	0.31	226.15	10194.71	2.56	-50.79	2.56	50.86	272.89	0.21
10300.00	0.80	245.51	10294.71	2.08	-51.62	2.08	51.67	272.31	0.51
10400.00	1.28	278.87	10394.69	1.97	-53.36	1.97	53.39	272.11	0.75
10500.00	1.38	268.63	10494.67	2.11	-55.66	2.11	55.70	272.17	0.26
10600.00	1.49	263.40	10594.63	1.93	-58.16	1.93	58.19	271.90	0.17
10700.00	2.28	262.82	10694.58	1.53	-61.42	1.53	61.44	271.43	0.79
10800.00	3.07	267.25	10794.47	1.16	-66.07	1.16	66.08	271.00	0.82
10900.00	3.08	269.24	10894.33	0.99	-71.43	0.99	71.44	270.80	0.11
11000.00	3.18	271.23	10994.18	1.02	-76.89	1.02	76.90	270.76	0.15
11100.00	3.20	270.59	11094.02	1.10	-82.46	1.10	82.47	270.77	0.04
11200.00	2.99	265.24	11193.88	0.92	-87.84	0.92	87.85	270.60	0.36
11237.00	2.98	266.79	11230.83	0.78	-89.77	0.78	89.77	270.50	0.22

HORIZONTAL DISPLACEMENT IS
89.77 FEET AT 270.50 DEGREES

Caza Petroleum

Project: Lea County, New Mexico NAD27
Site: Sec 14 T-23S R-34E
Well: Caza Ridge 14 State #3H
Wellbore: Rig: Patriot 4//Job # 1210522
Plan: Plan 7 10-2-2012

WELL DETAILS: Caza Ridge 14 State #3H

Ground Level: 3372.40
Northing 473335.40 Easting 776583.00 Latitude 32° 17' 53.3110 N Longitude 103° 26' 17.5995 W

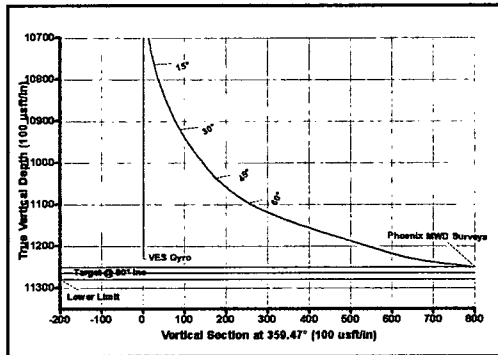
SECTION DETAILS

MD	Inc	Aal	TVD	+NI-S	+EI-W	Dleg	TFace	VSeet
12205.00	89.18	359.69	11265.05	1248.80	-57.79	0.00	0.00	1249.29
12248.99	90.05	0.22	11265.32	1289.79	-57.82	2.50	31.54	1290.27
12805.24	90.05	0.22	11265.00	1549.03	-58.43	0.00	0.00	1549.49
12811.17	90.19	0.26	11264.99	1654.97	-58.41	2.50	16.77	1655.42
15571.08	90.19	0.26	11265.00	4614.80	-42.77	0.00	0.00	4615.00

Ridge 14 State #3 @ 1650' VS
Ridge 14 State #3 PBHL v4

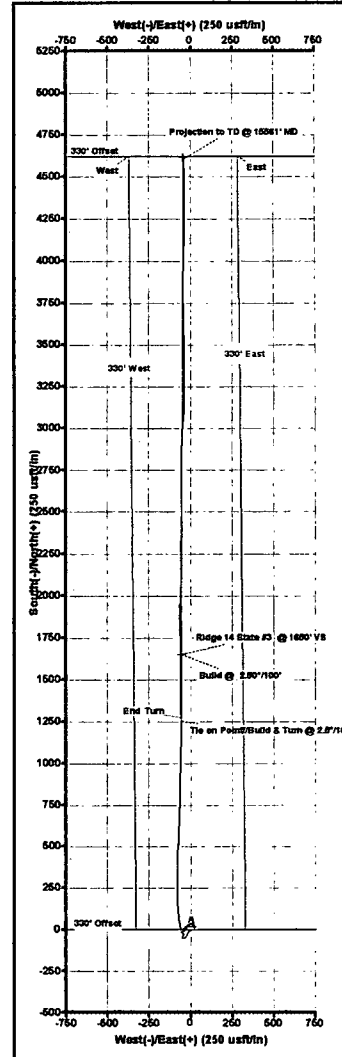


PHOENIX
TECHNOLOGY SERVICES

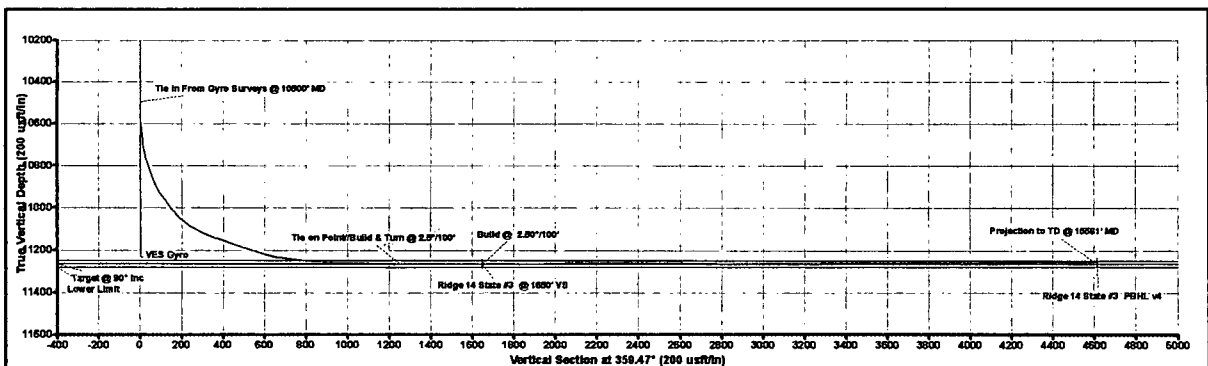


ANNOTATIONS

TVD	MD	Annotation
11265.05	12205.00	Tie on Point/Build & Turn @ 2.5°/100'
11265.28	12228.08	End Turn
11265.00	12805.27	Build @ 2.50°/100'
11255.00	15571.08	TD @ 15571.08' MD



Azimuths to Grid North
True North: 0.48°
Magnetic North: 6.90°
Magnetic Field
Strength: 48564.8nT
Dip Angle: 60.26°
Date: 08/31/2012
Model: IGRF2010_14



Created By: Jose Hernandez



PHOENIX
TECHNOLOGY SERVICES

30-025-40621

October 24, 2012

Oil Conservation Division
State of New Mexico
1625 N. French Drive
Hobbs, New Mexico 88240

Dear District 1 - Hobbs

Re: Caza Petroleum
Casa Ridge 14 State 3H /
Lea Co., NM /
API #30-025-40621 /
Job No. 1210522

HOBBS OCD

OCT 30 2012

RECEIVED

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 606018). Other information required by your office is as follows:

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Bruce Manser	3H	10,541	15,509	09/23/12	10/04/12	MWD

A certified plat on which the bottom hole location 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.

Best Regards,

Amy Pope
Operations Administrator

Certified mail receipt number: 7011 1570 0001 4364 9810

HOBBS OCD

Phoenix Technology Services SURVEY DATA CERTIFICATION

OCT 30 2012

RECEIVED



PHOENIX JOB NUMBER 1210522

OPERATOR Casa Petroleum

WELL NAME Casa Ridge 14 State #3H

COUNTY & STATE

Lea County, NM

API WELL NUMBER 30-025-40621

PROPOSED DIRECTION 359.47

TIE-IN DATA						
MEASURED DEPTH	VERTICAL DEPTH	INCLIN	AZIMUTH	N-S COORD	E-W COORD	DATA SOURCE
10,500 ft	10,494.67 ft	1.4 ft	268.6 ft	2.11 ft	-55.66 ft	VES

FIRST SURVEY DATE	FIRST SURVEY DEPTH	INCLIN	AZIMUTH
23-Sep-12	10,541 ft	1.6	260.9

SURVEY INSTRUMENT TYPE
Phoenix MWD

LAST SURVEY DATE	LAST SURVEY DEPTH	INCLIN	AZIMUTH
4-Oct-12	15,509 ft	88.6	358.6

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED TD SURVEY DATE	PROJECTED TD SURVEY DEPTH	INCLIN	AZIMUTH
4-Oct-12	15,561 ft	88.6	358.6

Bruce Manser

PRINT YOUR NAME ABOVE

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	DECLINATION
6.93	
DECLINATION OR GRID	DECLINATION

10-5-2012

TODAY'S DATE

MWD SUPERVISOR 1

Bruce Manser

DIRECTIONAL DRILLER 1

Michael Remedies

MWD SUPERVISOR 2

Jonathan Gammons

DIRECTIONAL DRILLER 2

Victor Mata/Steven Burgin

1805 Brittmore Road

Houston, Texas 77043

(713)3370609 (Voice), (713)337-0599 (Fax)



PHOENIX
TECHNOLOGY SERVICES

Caza Petroleum

Lea County, New Mexico NAD27

Sec 14 T-23S R-34E

Caza Ridge 14 State #3H

Rig: Patriot 4//Job # 1210522

30-025-40621

HOBBS OCD

OCT 30 2012

RECEIVED

Survey: Phoenix MWD Surveys

Caza Petroleum, Survey Report

05 October, 2012

SUR: O-14-23s-34e, 330/S & 1980/E
BHL: B-14-23s-34e, 4916/S & 2021/E
API # 30-025-40621



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Project	Lea County, New Mexico NAD27		
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	Sec 14 T-23S R-34E		
Site Position:		Northing:	473,335.40 usft
From:	Map	Easting:	776,583.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 17' 53.3110 N
		Longitude:	103° 26' 17.5995 W
		Grid Convergence:	0.48 °

Well	Caza Ridge 14 State #3H		
Well Position	+N-S	0.00 usft	Northing:
	+E-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	21.00 usft
		Latitude:	32° 17' 53.3110 N
		Longitude:	103° 26' 17.5995 W
		Ground Level:	3,372.40 usft

Wellbore	Rig: Patriot 4//Job # 1210522		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010_14	08/31/12	7.38
			Dip Angle
			60.25
			Field Strength
			48,555

Design	Rig: Patriot 4//Job # 1210522		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			359.47



Caza Petroleum, Survey Report

Company:	Caza Petroleum	Local Co-ordinate Reference:	Well Caza Ridge 14 State #3H
Project:	Lea County, New Mexico NAD27	TVD Reference:	WELL @ 3393.40usft (Patriot #4)
Site:	Sec 14 T-23S R-34E	MD Reference:	WELL @ 3393.40usft (Patriot #4)
Well:	Caza Ridge 14 State #3H	North Reference:	Grid
Wellbore:	Rig: Patriot 4//Job # 1210522	Survey Calculation Method:	Minimum Curvature
Design:	Rig: Patriot 4//Job # 1210522	Database:	Compass5000

Survey Program		Date 10/05/12		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	10,791.00	VES Gyro (Rig: Patriot 4//Job # 1210522)	NS-GYRO-MS	North sensing gyrocompassing m/s
10,791.00	15,561.00	Phoenix MWD Surveys (Rig: Patriot 4//Job	MWD	MWD - Standard

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,500.00	1.38	268.63	-7,101.27	10,494.67	2.14	-55.67	2.65	0.00	473,337.54	776,527.33
Tie in From Gyro Surveys @ 10500' MD										
10,541.00	1.60	260.90	-7,142.25	10,535.65	2.04	-56.73	2.56	0.73	473,337.44	776,526.27
First Phoenix MWD Surveys @ 10541' MD										
10,573.00	1.90	269.30	-7,174.24	10,567.64	1.96	-57.70	2.49	1.23	473,337.36	776,525.30
10,604.00	3.30	342.00	-7,205.21	10,598.61	2.80	-58.49	3.34	10.59	473,338.20	776,524.51
10,636.00	6.40	349.00	-7,237.09	10,630.49	5.43	-59.12	5.98	9.84	473,340.83	776,523.88
10,668.00	7.00	346.60	-7,268.88	10,662.28	9.08	-59.91	9.63	2.07	473,344.48	776,523.09
10,699.00	7.90	342.80	-7,299.61	10,693.01	12.95	-60.98	13.51	3.31	473,348.35	776,522.02
10,730.00	10.20	350.80	-7,330.23	10,723.63	17.70	-62.04	18.27	8.44	473,353.10	776,520.96
10,762.00	14.10	345.80	-7,361.50	10,754.90	24.27	-63.45	24.86	12.61	473,359.67	776,519.55
10,794.00	16.90	350.80	-7,392.34	10,785.74	32.65	-65.15	33.25	9.69	473,368.05	776,517.85
10,825.00	18.90	347.50	-7,421.84	10,815.24	42.00	-66.96	42.62	7.23	473,377.40	776,516.04
10,857.00	21.00	350.30	-7,451.92	10,845.32	52.71	-69.05	53.35	7.21	473,388.11	776,513.95
10,889.00	24.70	352.90	-7,481.40	10,874.80	65.00	-70.84	65.65	11.98	473,400.40	776,512.16
10,920.00	28.10	354.60	-7,509.16	10,902.56	78.70	-72.33	79.37	11.23	473,414.10	776,510.67
10,952.00	31.00	353.70	-7,537.00	10,930.40	94.40	-73.94	95.08	9.17	473,429.80	776,509.06
10,984.00	34.50	354.30	-7,563.91	10,957.31	111.61	-75.75	112.31	10.98	473,447.01	776,507.25
11,015.00	36.60	355.90	-7,589.13	10,982.53	129.57	-77.28	130.28	7.41	473,464.97	776,505.72
11,046.00	39.70	357.50	-7,613.51	11,006.91	148.68	-78.38	149.40	10.50	473,484.08	776,504.62
11,078.00	43.70	358.20	-7,637.39	11,030.79	169.95	-79.17	170.68	12.58	473,505.35	776,503.83
11,109.00	48.50	359.20	-7,658.88	11,052.28	192.28	-79.67	193.00	15.66	473,527.68	776,503.33



Caza Petroleum, Survey Report

Company: Caza Petroleum
Project: Lea County, New Mexico NAD27
Site: Sec 14 T-23S R-34E
Well: Caza Ridge 14 State #3H
Wellbore: Rig: Patriot 4//Job # 1210522
Design: Rig: Patriot 4//Job # 1210522

Local Co-ordinate Reference: Well Caza Ridge 14 State #3H
TVD Reference: WELL @ 3393.40usft (Patriot #4)
MD Reference: WELL @ 3393.40usft (Patriot #4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
11,141.00	53.60	0.30	-7,678.99	11,072.39	217.15	-79.77	217.88	16.16	473,552.55	776,503.23	
11,172.00	57.70	0.70	-7,696.48	11,089.88	242.74	-79.54	243.47	13.27	473,578.14	776,503.46	
11,204.00	63.00	1.00	-7,712.31	11,105.71	270.54	-79.13	271.26	16.58	473,605.94	776,503.87	
11,236.00	67.30	1.00	-7,725.75	11,119.15	299.56	-78.62	300.28	13.44	473,634.96	776,504.38	
11,268.00	68.70	0.30	-7,737.74	11,131.14	329.23	-78.29	329.94	4.82	473,664.63	776,504.71	
11,299.00	70.20	359.60	-7,748.62	11,142.02	358.26	-78.31	358.97	5.28	473,693.66	776,504.69	
11,331.00	71.30	0.20	-7,759.17	11,152.57	388.47	-78.36	389.17	3.87	473,723.87	776,504.64	
11,363.00	71.70	0.20	-7,769.32	11,162.72	418.81	-78.26	419.52	1.25	473,754.21	776,504.74	
11,394.00	72.40	1.30	-7,778.88	11,172.28	448.30	-77.87	449.00	4.06	473,783.70	776,505.13	
11,426.00	72.90	1.00	-7,788.42	11,181.82	478.84	-77.26	479.53	1.80	473,814.24	776,505.74	
11,457.00	72.80	1.70	-7,797.56	11,190.96	508.45	-76.56	509.14	2.18	473,843.85	776,506.44	
11,489.00	72.40	1.60	-7,807.13	11,200.53	538.97	-75.68	539.65	1.29	473,874.37	776,507.32	
11,521.00	73.80	2.30	-7,816.43	11,209.83	569.57	-74.64	570.24	4.85	473,904.97	776,508.36	
11,536.00	74.70	2.60	-7,820.50	11,213.90	584.00	-74.02	584.66	6.30	473,919.40	776,508.98	
11,584.00	76.20	2.90	-7,832.56	11,225.96	630.40	-71.79	631.04	3.18	473,965.80	776,511.21	
11,615.00	78.80	2.50	-7,839.27	11,232.67	660.63	-70.37	661.25	8.48	473,996.03	776,512.63	
11,646.00	81.90	2.10	-7,844.47	11,237.87	691.16	-69.14	691.77	10.08	474,026.56	776,513.86	
11,678.00	84.00	1.70	-7,848.39	11,241.79	722.90	-68.09	723.50	6.68	474,058.30	776,514.91	
11,710.00	84.00	1.50	-7,851.74	11,245.14	754.72	-67.20	755.30	0.62	474,090.12	776,515.80	
11,742.00	83.70	1.50	-7,855.17	11,248.57	786.52	-66.37	787.10	0.94	474,121.92	776,516.63	
11,773.00	83.30	1.70	-7,858.68	11,252.08	817.31	-65.51	817.88	1.44	474,152.71	776,517.49	
11,805.00	84.70	1.30	-7,862.02	11,255.42	849.12	-64.67	849.68	4.55	474,184.52	776,518.33	
11,836.00	86.20	1.40	-7,864.48	11,257.88	880.01	-63.95	880.57	4.85	474,215.41	776,519.05	
11,867.00	86.60	1.60	-7,866.43	11,259.83	910.94	-63.14	911.49	1.44	474,246.34	776,519.86	
11,899.00	88.10	1.50	-7,867.91	11,261.31	942.90	-62.27	943.43	4.70	474,278.30	776,520.73	
11,931.00	88.50	1.60	-7,868.86	11,262.26	974.87	-61.41	975.40	1.29	474,310.27	776,521.59	
11,963.00	87.90	1.20	-7,869.86	11,263.26	1,006.84	-60.63	1,007.36	2.25	474,342.24	776,522.37	



Caza Petroleum, Survey Report

Company: Caza Petroleum
Project: Lea County, New Mexico NAD27
Site: Sec 14 T-23S R-34E
Well: Caza Ridge 14 State #3H
Wellbore: Rig: Patriot 4//Job # 1210522
Design: Rig: Patriot 4//Job # 1210522

Local Co-ordinate Reference: Well Caza Ridge 14 State #3H
TVD Reference: WELL @ 3393.40usft (Patriot #4)
MD Reference: WELL @ 3393.40usft (Patriot #4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
11,995.00	89.10	1.00	-7,870.70	11,264.10	1,038.83	-60.01	1,039.34	3.80	474,374.23	776,522.99
12,058.00	90.40	1.40	-7,870.97	11,264.37	1,101.81	-58.69	1,102.31	2.16	474,437.21	776,524.31
12,154.00	89.50	359.90	-7,871.06	11,264.46	1,197.80	-57.60	1,198.28	1.82	474,533.20	776,525.40
12,249.00	88.90	359.50	-7,872.38	11,265.78	1,292.79	-58.10	1,293.27	0.76	474,628.19	776,524.90
12,342.00	89.90	359.50	-7,873.36	11,266.76	1,385.78	-58.91	1,386.27	1.08	474,721.18	776,524.09
12,436.00	89.60	0.00	-7,873.77	11,267.17	1,479.78	-59.32	1,480.26	0.62	474,815.18	776,523.68
12,531.00	91.30	0.70	-7,873.02	11,266.42	1,574.77	-58.74	1,575.25	1.94	474,910.17	776,524.26
12,626.00	88.20	358.10	-7,873.44	11,266.84	1,669.74	-59.74	1,670.22	4.26	475,005.14	776,523.26
12,721.00	91.10	359.20	-7,874.02	11,267.42	1,764.70	-61.97	1,765.20	3.26	475,100.10	776,521.03
12,814.00	90.50	358.80	-7,872.72	11,266.12	1,857.68	-63.60	1,858.19	0.78	475,193.08	776,519.40
12,909.00	92.30	0.30	-7,870.40	11,263.80	1,952.64	-64.34	1,953.15	2.47	475,288.04	776,518.66
13,004.00	91.60	3.00	-7,867.16	11,260.56	2,047.54	-61.61	2,048.02	2.93	475,382.94	776,521.39
13,099.00	90.00	1.60	-7,865.84	11,259.24	2,142.45	-57.80	2,142.89	2.24	475,477.85	776,525.20
13,194.00	88.60	0.20	-7,867.00	11,260.40	2,237.42	-56.30	2,237.85	2.08	475,572.82	776,526.70
13,288.00	90.80	1.90	-7,867.49	11,260.89	2,331.40	-54.58	2,331.80	2.96	475,666.80	776,528.42
13,383.00	90.20	1.00	-7,866.66	11,260.06	2,426.36	-52.18	2,426.74	1.14	475,761.76	776,530.82
13,476.00	89.90	0.30	-7,866.58	11,259.98	2,519.36	-51.12	2,519.72	0.82	475,854.76	776,531.88
13,571.00	89.00	359.10	-7,867.49	11,260.89	2,614.35	-51.62	2,614.71	1.58	475,949.75	776,531.38
13,668.00	88.50	358.90	-7,869.61	11,263.01	2,711.31	-53.31	2,711.69	0.56	476,046.71	776,529.69
13,762.00	89.50	1.20	-7,871.25	11,264.65	2,805.29	-53.23	2,805.66	2.67	476,140.69	776,529.77
13,854.00	89.50	1.30	-7,872.05	11,265.45	2,897.26	-51.22	2,897.61	0.11	476,232.66	776,531.78
13,950.00	91.10	3.50	-7,871.55	11,264.95	2,993.17	-47.20	2,993.48	2.83	476,328.57	776,535.80
14,044.00	90.80	3.20	-7,869.99	11,263.39	3,086.99	-41.71	3,087.25	0.45	476,422.39	776,541.29
14,141.00	91.40	1.50	-7,868.13	11,261.53	3,183.89	-37.74	3,184.10	1.86	476,519.29	776,545.26
14,235.00	90.80	0.30	-7,866.32	11,259.72	3,277.86	-36.26	3,278.05	1.43	476,613.26	776,546.74
14,329.00	89.70	359.40	-7,865.91	11,259.31	3,371.85	-36.51	3,372.05	1.51	476,707.25	776,546.49
14,424.00	90.20	359.30	-7,866.00	11,259.40	3,466.85	-37.58	3,467.05	0.54	476,802.25	776,545.42



Caza Petroleum, Survey Report

Company: Caza Petroleum
Project: Lea County, New Mexico NAD27
Site: Sec 14 T-23S R-34E
Well: Caza Ridge 14 State #3H
Wellbore: Rig: Patriot 4//Job # 1210522
Design: Rig: Patriot 4//Job # 1210522

Local Co-ordinate Reference: Well Caza Ridge 14 State #3H
TVD Reference: WELL @ 3393.40usft (Patriot #4)
MD Reference: WELL @ 3393.40usft (Patriot #4)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Compass5000

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
14,518.00	89.70	358.60	-7,866.08	11,259.48	3,560.83	-39.31	3,561.04	0.92	476,896.23	776,543.69
14,613.00	89.60	358.40	-7,866.66	11,260.06	3,655.80	-41.79	3,656.03	0.24	476,991.20	776,541.21
14,707.00	89.10	357.60	-7,867.73	11,261.13	3,749.73	-45.07	3,749.99	1.00	477,085.13	776,537.93
14,801.00	88.60	1.00	-7,869.61	11,263.01	3,843.69	-46.22	3,843.96	3.66	477,179.09	776,536.78
14,896.00	89.60	2.50	-7,871.10	11,264.50	3,938.63	-43.32	3,938.87	1.90	477,274.03	776,539.68
14,991.00	90.70	1.30	-7,870.86	11,264.26	4,033.58	-40.17	4,033.78	1.71	477,368.98	776,542.83
15,085.00	91.80	1.10	-7,868.81	11,262.21	4,127.53	-38.20	4,127.71	1.19	477,462.93	776,544.80
15,179.00	91.60	0.60	-7,866.02	11,259.42	4,221.48	-36.81	4,221.64	0.57	477,556.88	776,546.19
15,274.00	91.20	0.00	-7,863.70	11,257.10	4,316.45	-36.31	4,316.60	0.76	477,651.85	776,546.69
15,369.00	90.50	359.20	-7,862.29	11,255.69	4,411.44	-36.97	4,411.59	1.12	477,746.84	776,546.03
15,464.00	89.20	359.00	-7,862.54	11,255.94	4,506.42	-38.47	4,506.59	1.38	477,841.82	776,544.53
15,509.00	88.60	358.64	-7,863.40	11,256.80	4,551.40	-39.39	4,551.57	1.55	477,886.80	776,543.61
Last Phoenix MWD Surveys @ 15509' MD										
15,561.00	88.60	358.60	-7,864.67	11,258.07	4,603.37	-40.65	4,603.55	0.08	477,938.77	776,542.35
Projection to TD @ 15561' MD										

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
10,500.00	10,494.67	2.14	-55.67	Tie in From Gyro Surveys @ 10500' MD
10,541.00	10,535.65	2.04	-56.73	First Phoenix MWD Surveys @ 10541' MD
15,509.00	11,256.80	4,551.40	-39.39	Last Phoenix MWD Surveys @ 15509' MD
15,561.00	11,258.07	4,603.37	-40.65	Projection to TD @ 15561' MD

Checked By: _____ Approved By: _____ Date: _____