

Project: Lennox 32 State 10H
 Site: Lennox 32 State 10H
 Well: Lennox 32 State 10H
 Wellbore: Lennox 32 State 10H
 Design: 181029 Lennox 32 State 10H



**Caza
Petroleum**

HOBBY

OCT 29 2018
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Azimuths to Grid North
 True North: -0.51°
 Magnetic North: 6.08°

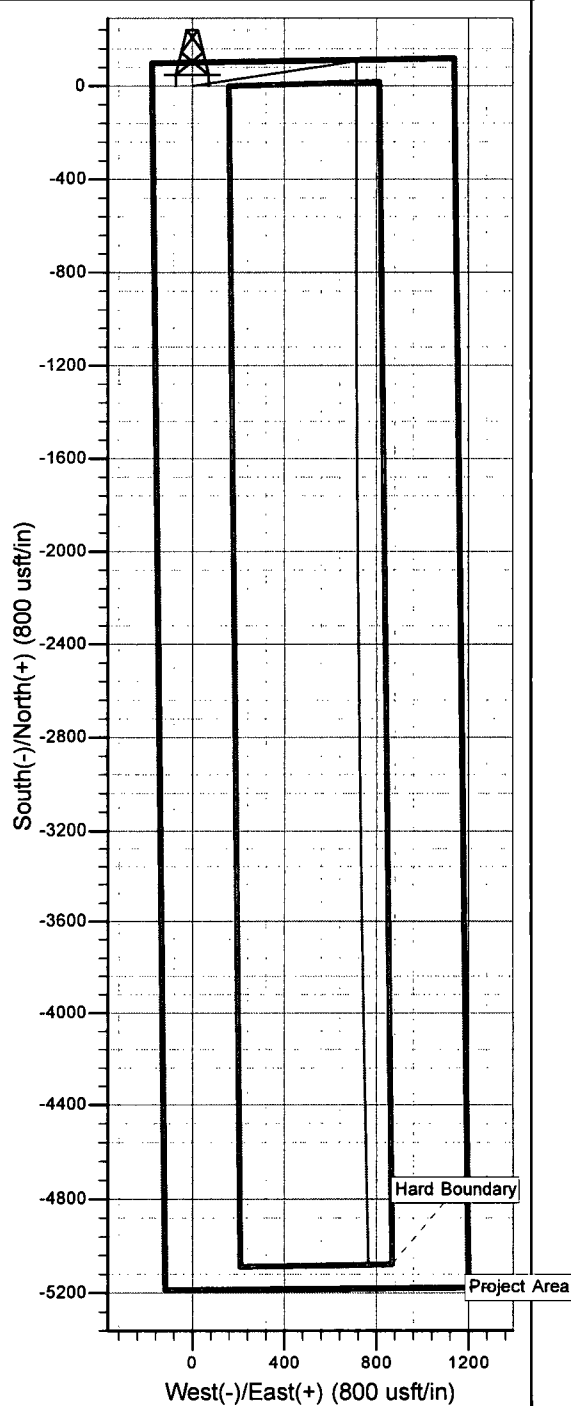
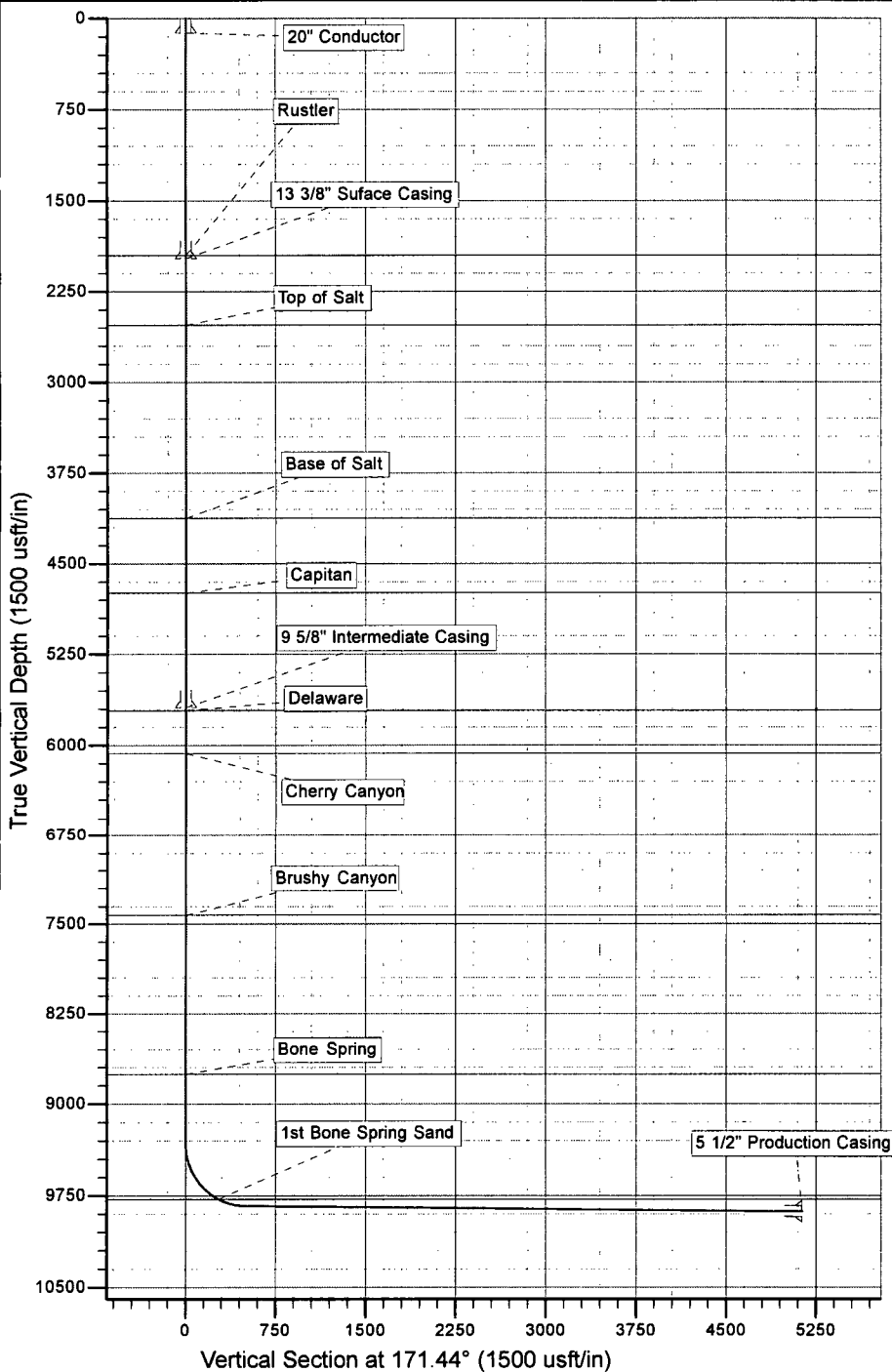
Magnetic Field
 Strength: 47974.9snT
 Dip Angle: 60.15°
 Date: 10/29/2018
 Model: IGRF2010

CASING DETAILS

TVD	MD	Name	Size
120.0	120.0	20" Conductor	20
1978.0	1978.0	13 3/8" Surface Casing	13-3/8
5688.0	5706.4	9 5/8" Intermediate Casing	9-5/8
9880.4	14840.0	5 1/2" Production Casing	5-1/2

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
1953.0	1953.0	Rustler	0.00	
2528.0	2529.0	Top of Salt	0.00	
4123.0	4132.7	Base of Salt	0.00	
4743.0	4756.2	Capitan	0.00	
5713.0	5731.5	Delaware	0.00	
6068.0	6088.5	Cherry Canyon	0.00	
7423.0	7450.9	Brushy Canyon	0.00	
8758.0	8793.3	Bone Spring	0.00	
9778.0	9920.1	1st Bone Spring Sand	0.00	





Caza Operating LLC

Lennox 32 State 10H

Lennox 32 State 10H

Lennox 32 State 10H

Lennox 32 State 10H

Plan: 181029 Lennox 32 State 10H

Morcor Standard Plan

29 October, 2018

**MORCOR
ENGINEERING**

**HOBBS OCD
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OCD

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Lennox 32 State 10H
Project:	Lennox 32 State 10H	TVD Reference:	WELL @ 3561.0usft (Original Well Elev)
Site:	Lennox 32 State 10H	MD Reference:	WELL @ 3561.0usft (Original Well Elev)
Well:	Lennox 32 State 10H	North Reference:	Grid
Wellbore:	Lennox 32 State 10H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 10H	Database:	EDM 5000.1 Single User Db

Project	Lennox 32 State 10H		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Lennox 32 State 10H		
Site Position:		Northing:	494,252.57 usft
From:	Lat/Long	Easting:	834,233.75 usft
Position Uncertainty:	1.0 usft	Slot Radius:	17-1/2 "
		Latitude:	32° 21' 18.734 N
		Longitude:	103° 23' 5.330 W
		Grid Convergence:	0.51 °

Well	Lennox 32 State 10H		
Well Position	+N/-S	0.0 usft	Northing: 494,252.57 usft
	+E/-W	0.0 usft	Easting: 834,233.75 usft
Position Uncertainty	1.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 21' 18.734 N
		Longitude:	103° 23' 5.330 W
		Ground Level:	3,539.0 usft

Wellbore	Lennox 32 State 10H		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	10/29/2018	6.59
			Dip Angle (°)
			60.15
			Field Strength (nT)
			47,975

Design	181029 Lennox 32 State 10H		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction (°)
			171.44

Survey Tool Program	Date	10/29/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	14,840.0	181029 Lennox 32 State 10H (Lennox 32 S	MWD	MWD - Standard

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Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	-3,561.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
100.0	0.00	81.50	100.0	-3,461.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
120.0	0.00	81.50	120.0	-3,441.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
20" Conductor										
200.0	0.00	81.50	200.0	-3,361.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
300.0	0.00	81.50	300.0	-3,261.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
400.0	0.00	81.50	400.0	-3,161.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
500.0	0.00	81.50	500.0	-3,061.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
600.0	0.00	81.50	600.0	-2,961.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
700.0	0.00	81.50	700.0	-2,861.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
800.0	0.00	81.50	800.0	-2,761.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
900.0	0.00	81.50	900.0	-2,661.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,000.0	0.00	81.50	1,000.0	-2,561.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,100.0	0.00	81.50	1,100.0	-2,461.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,200.0	0.00	81.50	1,200.0	-2,361.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,300.0	0.00	81.50	1,300.0	-2,261.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,400.0	0.00	81.50	1,400.0	-2,161.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,500.0	0.00	81.50	1,500.0	-2,061.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,600.0	0.00	81.50	1,600.0	-1,961.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,700.0	0.00	81.50	1,700.0	-1,861.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,800.0	0.00	81.50	1,800.0	-1,761.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,900.0	0.00	81.50	1,900.0	-1,661.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
1,953.0	0.00	81.50	1,953.0	-1,608.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
Rustler										
1,978.0	0.00	81.50	1,978.0	-1,583.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
13 3/8" Surface Casing										
2,000.0	0.00	81.50	2,000.0	-1,561.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
2,100.0	0.00	81.50	2,100.0	-1,461.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00

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Planned Survey

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2,200.0	0.00	81.50	2,200.0	-1,361.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
2,220.0	0.00	81.50	2,220.0	-1,341.0	0.0	0.0	834,233.75	494,252.57	0.00	0.00
Start Build 3.00										
2,300.0	2.40	81.50	2,300.0	-1,261.0	0.2	1.7	834,235.41	494,252.82	0.00	3.00
2,400.0	5.40	81.50	2,399.7	-1,161.3	1.3	8.4	834,242.13	494,253.83	0.01	3.00
2,420.0	6.00	81.50	2,419.6	-1,141.4	1.5	10.3	834,244.10	494,254.12	0.01	3.00
Start 6680.0 hold at 2420.0 MD										
2,500.0	6.00	81.50	2,499.2	-1,061.8	2.8	18.6	834,252.37	494,255.36	0.02	0.00
2,529.0	6.00	81.50	2,528.0	-1,033.0	3.2	21.6	834,255.36	494,255.80	0.02	0.00
Top of Salt										
2,600.0	6.00	81.50	2,598.6	-962.4	4.3	29.0	834,262.71	494,256.90	0.03	0.00
2,700.0	6.00	81.50	2,698.1	-862.9	5.9	39.3	834,273.04	494,258.45	0.04	0.00
2,800.0	6.00	81.50	2,797.6	-763.4	7.4	49.6	834,283.38	494,259.99	0.05	0.00
2,900.0	6.00	81.50	2,897.0	-664.0	9.0	60.0	834,293.72	494,261.54	0.06	0.00
3,000.0	6.00	81.50	2,996.5	-564.5	10.5	70.3	834,304.06	494,263.08	0.07	0.00
3,100.0	6.00	81.50	3,095.9	-465.1	12.1	80.6	834,314.40	494,264.63	0.08	0.00
3,200.0	6.00	81.50	3,195.4	-365.6	13.6	91.0	834,324.73	494,266.17	0.09	0.00
3,300.0	6.00	81.50	3,294.8	-266.2	15.1	101.3	834,335.07	494,267.72	0.11	0.00
3,400.0	6.00	81.50	3,394.3	-166.7	16.7	111.7	834,345.41	494,269.26	0.12	0.00
3,500.0	6.00	81.50	3,493.7	-67.3	18.2	122.0	834,355.75	494,270.81	0.13	0.00
3,600.0	6.00	81.50	3,593.2	32.2	19.8	132.3	834,366.09	494,272.35	0.14	0.00
3,700.0	6.00	81.50	3,692.6	131.6	21.3	142.7	834,376.42	494,273.90	0.15	0.00
3,800.0	6.00	81.50	3,792.1	231.1	22.9	153.0	834,386.76	494,275.44	0.16	0.00
3,900.0	6.00	81.50	3,891.5	330.5	24.4	163.4	834,397.10	494,276.99	0.17	0.00
4,000.0	6.00	81.50	3,991.0	430.0	26.0	173.7	834,407.44	494,278.53	0.18	0.00
4,100.0	6.00	81.50	4,090.4	529.4	27.5	184.0	834,417.78	494,280.08	0.19	0.00
4,132.7	6.00	81.50	4,123.0	562.0	28.0	187.4	834,421.16	494,280.58	0.19	0.00
Base of Salt										

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Design: 181029 Lennox 32 State 10H

Local Co-ordinate Reference: Well Lennox 32 State 10H
TVD Reference: WELL @ 3561.0usft (Original Well Elev)
MD Reference: WELL @ 3561.0usft (Original Well Elev)
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)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
4,200.0	6.00	81.50	4,189.9	628.9	29.0	194.4	834,428.11	494,281.62	0.20	0.00
4,300.0	6.00	81.50	4,289.3	728.3	30.6	204.7	834,438.45	494,283.17	0.21	0.00
4,400.0	6.00	81.50	4,388.8	827.8	32.1	215.0	834,448.79	494,284.71	0.22	0.00
4,500.0	6.00	81.50	4,488.2	927.2	33.7	225.4	834,459.13	494,286.26	0.23	0.00
4,600.0	6.00	81.50	4,587.7	1,026.7	35.2	235.7	834,469.47	494,287.80	0.24	0.00
4,700.0	6.00	81.50	4,687.1	1,126.1	36.8	246.1	834,479.80	494,289.35	0.26	0.00
4,756.2	6.00	81.50	4,743.0	1,182.0	37.6	251.9	834,485.61	494,290.21	0.26	0.00
Capitan										
4,800.0	6.00	81.50	4,786.6	1,225.6	38.3	256.4	834,490.14	494,290.89	0.27	0.00
4,900.0	6.00	81.50	4,886.0	1,325.0	39.9	266.7	834,500.48	494,292.44	0.28	0.00
5,000.0	6.00	81.50	4,985.5	1,424.5	41.4	277.1	834,510.82	494,293.98	0.29	0.00
5,100.0	6.00	81.50	5,085.0	1,524.0	43.0	287.4	834,521.16	494,295.53	0.30	0.00
5,200.0	6.00	81.50	5,184.4	1,623.4	44.5	297.7	834,531.49	494,297.07	0.31	0.00
5,300.0	6.00	81.50	5,283.9	1,722.9	46.0	308.1	834,541.83	494,298.62	0.32	0.00
5,400.0	6.00	81.50	5,383.3	1,822.3	47.6	318.4	834,552.17	494,300.16	0.33	0.00
5,500.0	6.00	81.50	5,482.8	1,921.8	49.1	328.8	834,562.51	494,301.71	0.34	0.00
5,600.0	6.00	81.50	5,582.2	2,021.2	50.7	339.1	834,572.85	494,303.25	0.35	0.00
5,700.0	6.00	81.50	5,681.7	2,120.7	52.2	349.4	834,583.18	494,304.80	0.36	0.00
5,706.4	6.00	81.50	5,688.0	2,127.0	52.3	350.1	834,583.84	494,304.89	0.36	0.00
9 5/8" Intermediate Casing										
5,731.5	6.00	81.50	5,713.0	2,152.0	52.7	352.7	834,586.44	494,305.28	0.37	0.00
Delaware										
5,800.0	6.00	81.50	5,781.1	2,220.1	53.8	359.8	834,593.52	494,306.34	0.37	0.00
5,900.0	6.00	81.50	5,880.6	2,319.6	55.3	370.1	834,603.86	494,307.89	0.38	0.00
6,000.0	6.00	81.50	5,980.0	2,419.0	56.9	380.4	834,614.20	494,309.43	0.40	0.00
6,088.5	6.00	81.50	6,068.0	2,507.0	58.2	389.6	834,623.34	494,310.80	0.40	0.00
Cherry Canyon										

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6,100.0	6.00	81.50	6,079.5	2,518.5	58.4	390.8	834,624.54	494,310.98	0.41	0.00
6,200.0	6.00	81.50	6,178.9	2,617.9	59.9	401.1	834,634.87	494,312.52	0.42	0.00
6,300.0	6.00	81.50	6,278.4	2,717.4	61.5	411.5	834,645.21	494,314.07	0.43	0.00
6,400.0	6.00	81.50	6,377.8	2,816.8	63.0	421.8	834,655.55	494,315.61	0.44	0.00
6,500.0	6.00	81.50	6,477.3	2,916.3	64.6	432.1	834,665.89	494,317.16	0.45	0.00
6,600.0	6.00	81.50	6,576.7	3,015.7	66.1	442.5	834,676.23	494,318.70	0.46	0.00
6,700.0	6.00	81.50	6,676.2	3,115.2	67.7	452.8	834,686.57	494,320.25	0.47	0.00
6,800.0	6.00	81.50	6,775.6	3,214.6	69.2	463.2	834,696.90	494,321.79	0.48	0.00
6,900.0	6.00	81.50	6,875.1	3,314.1	70.8	473.5	834,707.24	494,323.34	0.49	0.00
7,000.0	6.00	81.50	6,974.5	3,413.5	72.3	483.8	834,717.58	494,324.88	0.50	0.00
7,100.0	6.00	81.50	7,074.0	3,513.0	73.9	494.2	834,727.92	494,326.43	0.51	0.00
7,200.0	6.00	81.50	7,173.4	3,612.4	75.4	504.5	834,738.26	494,327.97	0.52	0.00
7,300.0	6.00	81.50	7,272.9	3,711.9	76.9	514.8	834,748.59	494,329.52	0.53	0.00
7,400.0	6.00	81.50	7,372.4	3,811.4	78.5	525.2	834,758.93	494,331.06	0.55	0.00
7,450.9	6.00	81.50	7,423.0	3,862.0	79.3	530.4	834,764.20	494,331.85	0.55	0.00
Brushy Canyon										
7,500.0	6.00	81.50	7,471.8	3,910.8	80.0	535.5	834,769.27	494,332.61	0.56	0.00
7,600.0	6.00	81.50	7,571.3	4,010.3	81.6	545.9	834,779.61	494,334.15	0.57	0.00
7,700.0	6.00	81.50	7,670.7	4,109.7	83.1	556.2	834,789.95	494,335.70	0.58	0.00
7,800.0	6.00	81.50	7,770.2	4,209.2	84.7	566.5	834,800.28	494,337.24	0.59	0.00
7,900.0	6.00	81.50	7,869.6	4,308.6	86.2	576.9	834,810.62	494,338.79	0.60	0.00
8,000.0	6.00	81.50	7,969.1	4,408.1	87.8	587.2	834,820.96	494,340.33	0.61	0.00
8,100.0	6.00	81.50	8,068.5	4,507.5	89.3	597.5	834,831.30	494,341.88	0.62	0.00
8,200.0	6.00	81.50	8,168.0	4,607.0	90.8	607.9	834,841.64	494,343.42	0.63	0.00
8,300.0	6.00	81.50	8,267.4	4,706.4	92.4	618.2	834,851.97	494,344.97	0.64	0.00
8,400.0	6.00	81.50	8,366.9	4,805.9	93.9	628.6	834,862.31	494,346.51	0.65	0.00
8,500.0	6.00	81.50	8,466.3	4,905.3	95.5	638.9	834,872.65	494,348.06	0.66	0.00

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Well:	Lennox 32 State 10H	North Reference:	Grid
Wellbore:	Lennox 32 State 10H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 10H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)	
8,600.0	6.00	81.50	8,565.8	5,004.8	97.0	649.2	834,882.99	494,349.60	0.67	0.00	
8,700.0	6.00	81.50	8,665.2	5,104.2	98.6	659.6	834,893.33	494,351.15	0.68	0.00	
8,793.3	6.00	81.50	8,758.0	5,197.0	100.0	669.2	834,902.97	494,352.59	0.69	0.00	
Bone Spring											
8,800.0	6.00	81.50	8,764.7	5,203.7	100.1	669.9	834,903.66	494,352.69	0.70	0.00	
8,900.0	6.00	81.50	8,864.1	5,303.1	101.7	680.3	834,914.00	494,354.24	0.71	0.00	
9,000.0	6.00	81.50	8,963.6	5,402.6	103.2	690.6	834,924.34	494,355.78	0.72	0.00	
9,100.0	6.00	81.50	9,063.0	5,502.0	104.8	700.9	834,934.68	494,357.33	0.73	0.00	
Start Drop -3.00											
9,200.0	3.00	81.50	9,162.7	5,601.7	105.9	708.7	834,942.44	494,358.49	0.74	3.00	
9,300.0	0.00	0.00	9,262.7	5,701.7	106.3	711.3	834,945.03	494,358.87	0.74	3.00	
Start 65.0 hold at 9300.0 MD											
9,365.0	0.00	180.00	9,327.7	5,766.7	106.3	711.3	834,945.03	494,358.87	0.74	0.00	
Start Build 11.32											
9,400.0	3.96	180.00	9,362.6	5,801.6	105.1	711.3	834,945.03	494,357.66	1.93	11.32	
9,500.0	15.28	180.00	9,461.1	5,900.1	88.4	711.3	834,945.03	494,340.98	18.44	11.32	
9,600.0	26.60	180.00	9,554.3	5,993.3	52.7	711.3	834,945.03	494,305.29	53.72	11.32	
9,700.0	37.92	180.00	9,638.7	6,077.7	-0.6	711.3	834,945.03	494,252.00	106.42	11.32	
9,800.0	49.24	180.00	9,711.1	6,150.1	-69.4	711.3	834,945.03	494,183.17	174.49	11.32	
9,900.0	60.56	180.00	9,768.5	6,207.5	-151.1	711.3	834,945.03	494,101.48	255.26	11.32	
9,920.1	62.84	180.00	9,778.0	6,217.0	-168.8	711.3	834,945.03	494,083.78	272.77	11.32	
1st Bone Spring Sand											
10,000.0	71.88	180.00	9,808.7	6,247.7	-242.5	711.3	834,945.03	494,010.12	345.61	11.32	
10,100.0	83.20	180.00	9,830.3	6,269.3	-339.9	711.3	834,945.03	493,912.63	442.01	11.32	
10,155.0	89.43	180.00	9,833.8	6,272.8	-394.8	711.3	834,945.03	493,857.77	496.26	11.32	
Start DLS 0.03 TFO -90.01											
10,200.0	89.43	179.99	9,834.2	6,273.2	-439.8	711.3	834,945.03	493,812.78	540.76	0.03	
10,300.0	89.43	179.96	9,835.2	6,274.2	-539.8	711.3	834,945.08	493,712.78	639.64	0.03	

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Lennox 32 State 10H
Project:	Lennox 32 State 10H	TVD Reference:	WELL @ 3561.0usft (Original Well Elev)
Site:	Lennox 32 State 10H	MD Reference:	WELL @ 3561.0usft (Original Well Elev)
Well:	Lennox 32 State 10H	North Reference:	Grid
Wellbore:	Lennox 32 State 10H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 10H	Database:	EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
10,400.0	89.43	179.93	9,836.2	6,275.2	-639.8	711.4	834,945.17	493,612.79	738.54	0.03
10,500.0	89.43	179.90	9,837.2	6,276.2	-739.8	711.6	834,945.31	493,512.79	837.44	0.03
10,600.0	89.43	179.88	9,838.2	6,277.2	-839.8	711.8	834,945.50	493,412.80	936.35	0.03
10,700.0	89.43	179.85	9,839.2	6,278.2	-939.8	712.0	834,945.74	493,312.80	1,035.27	0.03
10,800.0	89.43	179.82	9,840.2	6,279.2	-1,039.8	712.3	834,946.03	493,212.81	1,134.19	0.03
10,900.0	89.43	179.79	9,841.2	6,280.2	-1,139.8	712.6	834,946.37	493,112.81	1,233.12	0.03
11,000.0	89.43	179.77	9,842.2	6,281.2	-1,239.8	713.0	834,946.75	493,012.82	1,332.06	0.03
11,100.0	89.43	179.74	9,843.2	6,282.2	-1,339.7	713.4	834,947.19	492,912.82	1,431.01	0.03
11,200.0	89.43	179.71	9,844.2	6,283.2	-1,439.7	713.9	834,947.67	492,812.83	1,529.96	0.03
11,300.0	89.43	179.68	9,845.2	6,284.2	-1,539.7	714.4	834,948.20	492,712.84	1,628.92	0.03
11,400.0	89.43	179.65	9,846.2	6,285.2	-1,639.7	715.0	834,948.78	492,612.84	1,727.88	0.03
11,500.0	89.43	179.63	9,847.2	6,286.2	-1,739.7	715.7	834,949.41	492,512.85	1,826.86	0.03
11,600.0	89.43	179.60	9,848.2	6,287.2	-1,839.7	716.3	834,950.08	492,412.86	1,925.84	0.03
11,700.0	89.43	179.57	9,849.2	6,288.2	-1,939.7	717.1	834,950.81	492,312.86	2,024.82	0.03
11,800.0	89.43	179.54	9,850.2	6,289.2	-2,039.7	717.8	834,951.58	492,212.87	2,123.82	0.03
11,900.0	89.43	179.52	9,851.1	6,290.1	-2,139.7	718.6	834,952.40	492,112.88	2,222.82	0.03
12,000.0	89.43	179.49	9,852.1	6,291.1	-2,239.7	719.5	834,953.27	492,012.89	2,321.82	0.03
12,100.0	89.43	179.46	9,853.1	6,292.1	-2,339.7	720.4	834,954.19	491,912.90	2,420.84	0.03
12,200.0	89.43	179.43	9,854.1	6,293.1	-2,439.7	721.4	834,955.15	491,812.91	2,519.86	0.03
12,300.0	89.43	179.40	9,855.1	6,294.1	-2,539.7	722.4	834,956.17	491,712.92	2,618.89	0.03
12,400.0	89.43	179.38	9,856.1	6,295.1	-2,639.6	723.5	834,957.23	491,612.93	2,717.92	0.03
12,500.0	89.43	179.35	9,857.1	6,296.1	-2,739.6	724.6	834,958.34	491,512.94	2,816.96	0.03
12,600.0	89.43	179.32	9,858.1	6,297.1	-2,839.6	725.8	834,959.50	491,412.95	2,916.01	0.03
12,700.0	89.43	179.29	9,859.1	6,298.1	-2,939.6	727.0	834,960.71	491,312.96	3,015.06	0.03
12,800.0	89.43	179.27	9,860.1	6,299.1	-3,039.6	728.2	834,961.97	491,212.98	3,114.12	0.03
12,900.0	89.43	179.24	9,861.1	6,300.1	-3,139.6	729.5	834,963.27	491,112.99	3,213.19	0.03
13,000.0	89.43	179.21	9,862.1	6,301.1	-3,239.6	730.9	834,964.62	491,013.00	3,312.26	0.03

Company: Caza Operating LLC
Project: Lennox 32 State 10H
Site: Lennox 32 State 10H
Well: Lennox 32 State 10H
Wellbore: Lennox 32 State 10H
Design: 181029 Lennox 32 State 10H

Local Co-ordinate Reference: Well Lennox 32 State 10H
TVD Reference: WELL @ 3561.0usft (Original Well Elev)
MD Reference: WELL @ 3561.0usft (Original Well Elev)
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)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
13,100.0	89.43	179.18	9,863.1	6,302.1	-3,339.6	732.3	834,966.03	490,913.02	3,411.34	0.03
13,200.0	89.43	179.16	9,864.1	6,303.1	-3,439.5	733.7	834,967.48	490,813.03	3,510.43	0.03
13,300.0	89.43	179.13	9,865.1	6,304.1	-3,539.5	735.2	834,968.97	490,713.05	3,609.52	0.03
13,400.0	89.43	179.10	9,866.1	6,305.1	-3,639.5	736.8	834,970.52	490,613.07	3,708.62	0.03
13,500.0	89.43	179.07	9,867.1	6,306.1	-3,739.5	738.4	834,972.12	490,513.09	3,807.73	0.03
13,600.0	89.43	179.04	9,868.1	6,307.1	-3,839.5	740.0	834,973.76	490,413.10	3,906.84	0.03
13,700.0	89.43	179.02	9,869.1	6,308.1	-3,939.4	741.7	834,975.45	490,313.12	4,005.96	0.03
13,800.0	89.43	178.99	9,870.0	6,309.0	-4,039.4	743.4	834,977.19	490,213.14	4,105.09	0.03
13,900.0	89.43	178.96	9,871.0	6,310.0	-4,139.4	745.2	834,978.98	490,113.16	4,204.22	0.03
14,000.0	89.43	178.93	9,872.0	6,311.0	-4,239.4	747.1	834,980.82	490,013.19	4,303.36	0.03
14,100.0	89.43	178.91	9,873.0	6,312.0	-4,339.4	749.0	834,982.71	489,913.21	4,402.50	0.03
14,200.0	89.43	178.88	9,874.0	6,313.0	-4,439.3	750.9	834,984.64	489,813.23	4,501.65	0.03
14,300.0	89.43	178.85	9,875.0	6,314.0	-4,539.3	752.9	834,986.63	489,713.26	4,600.81	0.03
14,400.0	89.43	178.82	9,876.0	6,315.0	-4,639.3	754.9	834,988.66	489,613.28	4,699.97	0.03
14,500.0	89.43	178.79	9,877.0	6,316.0	-4,739.3	757.0	834,990.74	489,513.31	4,799.14	0.03
14,600.0	89.43	178.77	9,878.0	6,317.0	-4,839.2	759.1	834,992.86	489,413.34	4,898.32	0.03
14,700.0	89.43	178.74	9,879.0	6,318.0	-4,939.2	761.3	834,995.04	489,313.37	4,997.50	0.03
14,800.0	89.43	178.71	9,880.0	6,319.0	-5,039.2	763.5	834,997.27	489,213.40	5,096.69	0.03
14,840.0	89.43	178.70	9,880.4	6,319.4	-5,079.2	764.4	834,998.17	489,173.41	5,136.37	0.03

TD at 14840.0 - 5 1/2" Production Casing

Company: Caza Operating LLC
Project: Lennox 32 State 10H
Site: Lennox 32 State 10H
Well: Lennox 32 State 10H
Wellbore: Lennox 32 State 10H
Design: 181029 Lennox 32 State 10H

Local Co-ordinate Reference: Well Lennox 32 State 10H
TVD Reference: WELL @ 3561.0usft (Original Well Elev)
MD Reference: WELL @ 3561.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
120.0	120.0	20" Conductor	20	26
1,978.0	1,978.0	13 3/8" Surface Casing	13-3/8	17-1/2
5,706.4	5,688.0	9 5/8" Intermediate Casing	9-5/8	12-1/4
14,840.0	9,880.4	5 1/2" Production Casing	5-1/2	8-3/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,088.5	6,068.0	Cherry Canyon		0.00	
9,920.1	9,778.0	1st Bone Spring Sand		0.00	
1,953.0	1,953.0	Rustler		0.00	
4,756.2	4,743.0	Capitan		0.00	
8,793.3	8,758.0	Bone Spring		0.00	
7,450.9	7,423.0	Brushy Canyon		0.00	
5,731.5	5,713.0	Delaware		0.00	
4,132.7	4,123.0	Base of Salt		0.00	
2,529.0	2,528.0	Top of Salt		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,220.0	2,220.0	0.0	0.0	Start Build 3.00
2,420.0	2,419.6	1.5	10.3	Start 6680.0 hold at 2420.0 MD
9,100.0	9,063.0	104.8	700.9	Start Drop -3.00
9,300.0	9,262.7	106.3	711.3	Start 65.0 hold at 9300.0 MD
9,365.0	9,327.7	106.3	711.3	Start Build 11.32
10,155.0	9,833.8	-394.8	711.3	Start DLS 0.03 TFO -90.01
14,840.0	9,880.4	-5,079.2	764.4	TD at 14840.0



Morcor Engineering
Morcor Standard Plan

MORCOR
ENGINEERING

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Lennox 32 State 10H
Project:	Lennox 32 State 10H	TVD Reference:	WELL @ 3561.0usft (Original Well Elev)
Site:	Lennox 32 State 10H	MD Reference:	WELL @ 3561.0usft (Original Well Elev)
Well:	Lennox 32 State 10H	North Reference:	Grid
Wellbore:	Lennox 32 State 10H	Survey Calculation Method:	Minimum Curvature
Design:	181029 Lennox 32 State 10H	Database:	EDM 5000.1 Single User Db

Checked By: _____ Approved By: _____ Date: _____