

**NM OIL CONSERVATION
ARTESIA DISTRICT**

OCT 18 2018

RECEIVED



**Caza
Petroleum**

Caza Operating LLC

Alisa Ogden 15 - 4H

Alisa Ogden 15 - 4H

Alisa Ogden 15 - 4H

Alisa Ogden 15 - 4H

30.015-45363

Plan: 181017 Alisa Ogden 15 - 4H

Morcor Standard Plan

18 October, 2018

**MORCOR
ENGINEERING**



Morcor Engineering
Morcor Standard Plan

WORLDWIDE

Company: Caza Operating LLC
Project: Alisa Ogden 15 - 4H
Site: Alisa Ogden 15 - 4H
Well: Alisa Ogden 15 - 4H
Wellbore: Alisa Ogden 15 - 4H
Design: 161017 Alisa Ogden

Well Alias: Opden 15 - 4H
TVD Co-ordinate Reference: WELL @ 3149.0surf (Original Well Elev)
MD Reference: WELL @ 3149.0surf (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Alisa Ogden 15 - 4H
Map System:	US State Plane 1983
Geo Datum:	North American Datum 1983
Map Zone:	New Mexico Eastern Zone

Mean Sea Level

Site	Alisa Ogden 15 - 4H
Site Position:	
From:	LaVLong
Position Uncertainty:	1.0 unit

Latitude: 32° 18' 5.286 N
Longitude: 104° 10' 13.080 W
Grid Convergence: 0.09 °

Well	Alisa Ogden 15 - 4H
Well Position	+N-S 0.0 usf
	+E-W 0.0 usf
Position Uncertainty	1.0 usf

Latitude: 32° 18' 5.296 N
Longitude: 104° 10' 13.080 W
Ground Level: 3,127.0 usft

Wellbore Alisa Ogden 15 - 4H

Magnetics	Model Name	Sample Date	Declination ($^{\circ}$)	Dip Angle ($^{\circ}$)	Field Strength (nT)
	IGRF2010	10/17/2018	6.96	59.88	47,870

Design
181017 Alisa Ogden 15 - 4H

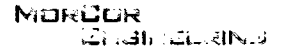
Audit Notes:	Version:	Vertical Section:	Phase:	PLAN	Tie On Depth:	Direction
			Depth From (TVD)	+NLS (uoft)	+ELW (uoft)	(")
			0.0	0.0	0.0	279.44

Survey Tool Program	Date	10/18/2018
Survey (Net)	14,750.0	181017
Survey (Net)	14,750.0	181017

Tool Name	Description
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)	DLag (°/100usft)
0.0	0.00	0.00	0.0	-3,149.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
100.0	0.00	85.00	100.0	-3,049.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
120.0	0.00	85.00	120.0	-3,029.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
20" Conductor										
200.0	0.00	85.00	200.0	-2,949.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
300.0	0.00	85.00	300.0	-2,849.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
400.0	0.00	85.00	400.0	-2,749.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
405.0	0.00	85.00	405.0	-2,744.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
13 3/8" Surface Casing										
430.0	0.00	85.00	430.0	-2,719.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
Salado										
500.0	0.00	85.00	500.0	-2,649.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
600.0	0.00	85.00	600.0	-2,549.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
700.0	0.00	85.00	700.0	-2,449.0	0.0	0.0	591,709.88	473,445.96	0.00	0.00
800.0	3.25	85.00	799.9	-2,349.1	0.2	2.8	591,712.88	473,446.21	-2.75	3.25
900.0	6.50	85.00	899.6	-2,249.4	1.0	11.3	591,721.15	473,446.95	-10.97	3.25
1,000.0	6.50	85.00	998.9	-2,150.1	2.0	22.8	591,732.42	473,447.94	-21.94	0.00
1,100.0	6.50	85.00	1,098.3	-2,050.7	3.0	33.8	591,743.70	473,448.93	-32.90	0.00
1,200.0	6.50	85.00	1,197.6	-1,951.4	3.9	45.1	591,754.98	473,449.91	-43.86	0.00
1,208.4	6.50	85.00	1,204.0	-1,945.0	4.0	45.8	591,755.70	473,449.98	-44.56	0.00
Top of Salt										
1,300.0	6.50	85.00	1,297.0	-1,852.0	4.9	56.4	591,766.25	473,450.90	-54.82	0.00
1,400.0	5.43	81.13	1,396.5	-1,752.5	7.7	66.2	591,776.04	473,453.68	-64.02	2.68
1,500.0	5.58	32.99	1,496.0	-1,653.0	14.1	73.0	591,782.83	473,460.04	-69.68	2.68
1,600.0	6.85	11.00	1,595.5	-1,553.5	24.0	76.8	591,788.62	473,469.97	-71.78	2.68
1,700.0	6.85	11.00	1,694.7	-1,454.3	35.7	79.0	591,788.89	473,481.68	-72.11	0.00
1,800.0	6.85	11.00	1,794.0	-1,355.0	47.4	81.3	591,791.17	473,493.39	-72.43	0.00
1,900.0	6.85	11.00	1,893.3	-1,255.7	59.1	83.6	591,793.45	473,505.10	-72.75	0.00



Morcor Engineering
Morcor Standard Plan

MORCOR
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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLog (*100usft)
1,912.8	6.85	11.00	1,906.0	-1,243.0	60.6	83.9	591,793.74	473,506.59	-72.79	0.00
Base of Salt										
2,000.0	6.85	11.00	1,992.6	-1,156.4	70.8	85.9	591,795.72	473,516.80	-73.08	0.00
2,095.1	6.85	11.00	2,087.0	-1,062.0	82.0	88.0	591,797.88	473,527.94	-73.38	0.00
Delaware										
2,100.0	6.85	11.00	2,091.9	-1,057.1	82.5	88.1	591,798.00	473,528.51	-73.40	0.00
2,200.0	6.85	11.00	2,191.2	-957.8	94.3	90.4	591,800.27	473,540.22	-73.72	0.00
2,300.0	6.85	11.00	2,290.5	-858.5	106.0	92.7	591,802.55	473,551.93	-74.05	0.00
2,400.0	6.85	11.00	2,389.7	-759.3	117.7	95.0	591,804.82	473,563.64	-74.37	0.00
2,500.0	6.85	11.00	2,489.0	-660.0	129.4	97.2	591,807.10	473,575.34	-74.70	0.00
2,600.0	6.85	11.00	2,588.3	-560.7	141.1	99.5	591,809.38	473,587.05	-75.02	0.00
2,700.0	6.85	11.00	2,687.6	-461.4	152.8	101.8	591,811.65	473,598.76	-75.34	0.00
2,800.0	6.85	11.00	2,786.9	-362.1	164.5	104.1	591,813.93	473,610.47	-75.67	0.00
2,851.5	6.85	11.00	2,838.0	-311.0	170.5	105.2	591,815.10	473,616.49	-75.83	0.00
Cherry Canyon										
2,900.0	6.85	11.00	2,886.2	-262.8	176.2	106.3	591,816.20	473,622.17	-75.99	0.00
3,000.0	6.85	11.00	2,985.5	-163.5	187.9	108.6	591,818.48	473,633.88	-76.32	0.00
3,100.0	6.85	11.00	3,084.7	-64.3	199.6	110.9	591,820.75	473,645.59	-76.64	0.00
3,200.0	6.85	11.00	3,184.0	35.0	211.3	113.2	591,823.03	473,657.30	-76.96	0.00
3,300.0	6.85	11.00	3,283.3	134.3	223.0	115.4	591,825.31	473,669.01	-77.29	0.00
3,400.0	6.85	11.00	3,382.6	233.6	234.7	117.7	591,827.58	473,680.71	-77.61	0.00
3,500.0	6.85	11.00	3,481.9	332.9	246.5	120.0	591,829.86	473,692.42	-77.93	0.00
3,600.0	6.85	11.00	3,581.2	432.2	258.2	122.3	591,832.13	473,704.13	-78.26	0.00
3,700.0	6.85	11.00	3,680.5	531.5	269.9	124.6	591,834.41	473,715.84	-78.58	0.00
3,800.0	6.85	11.00	3,779.7	630.7	281.6	126.8	591,836.69	473,727.55	-78.91	0.00
3,900.0	6.85	11.00	3,879.0	730.0	293.3	129.1	591,838.96	473,739.25	-79.23	0.00
4,000.0	6.85	11.00	3,978.3	829.3	305.0	131.4	591,841.24	473,750.96	-79.55	0.00



Morcor Engineering
Morcor Standard Plan

MORCOR
ENGINEERING

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Wellbore:	Alisa Ogden 15 - 4H	Survey Calculation Method:	Minimum Curvature
Design:	181017 Alisa Ogden 15 - 4H	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)	DLog (°/100usft)
4,033.9	6.85	11.00	4,012.0	883.0	309.0	132.2	591,842.01	473,754.93	-79.66	0.00
Brushy Canyon										
4,100.0	6.85	11.00	4,077.8	928.6	316.7	133.7	591,843.51	473,762.67	-79.88	0.00
4,200.0	6.85	11.00	4,176.9	1,027.9	328.4	135.9	591,845.79	473,774.38	-80.20	0.00
4,300.0	6.85	11.00	4,276.2	1,127.2	340.1	138.2	591,848.06	473,786.09	-80.53	0.00
4,400.0	6.85	11.00	4,375.5	1,226.5	351.8	140.5	591,850.34	473,797.79	-80.85	0.00
4,500.0	6.85	11.00	4,474.8	1,325.8	363.5	142.8	591,852.62	473,809.50	-81.17	0.00
4,600.0	6.85	11.00	4,574.0	1,425.0	375.2	145.0	591,854.89	473,821.21	-81.50	0.00
4,700.0	6.85	11.00	4,673.3	1,524.3	387.0	147.3	591,857.17	473,832.92	-81.82	0.00
4,800.0	6.85	11.00	4,772.6	1,623.6	398.7	149.6	591,859.44	473,844.63	-82.15	0.00
4,900.0	6.85	11.00	4,871.9	1,722.9	410.4	151.9	591,861.72	473,856.33	-82.47	0.00
5,000.0	6.85	11.00	4,971.2	1,822.2	422.1	154.1	591,863.99	473,868.04	-82.79	0.00
5,100.0	6.85	11.00	5,070.5	1,921.5	433.8	156.4	591,866.27	473,879.75	-83.12	0.00
5,200.0	6.85	11.00	5,169.8	2,020.8	445.5	158.7	591,868.55	473,891.46	-83.44	0.00
5,300.0	6.85	11.00	5,269.0	2,120.0	457.2	161.0	591,870.82	473,903.16	-83.76	0.00
5,400.0	6.85	11.00	5,368.3	2,219.3	468.9	163.2	591,873.10	473,914.87	-84.09	0.00
5,500.0	6.85	11.00	5,467.6	2,318.6	480.6	165.5	591,875.37	473,926.58	-84.41	0.00
5,600.0	6.85	11.00	5,566.9	2,417.9	492.3	167.8	591,877.65	473,938.29	-84.74	0.00
5,609.2	6.85	11.00	5,576.0	2,427.0	493.4	168.0	591,877.66	473,939.36	-84.77	0.00
Bone Spring										
5,700.0	6.85	11.00	5,666.2	2,517.2	504.0	170.1	591,879.92	473,950.00	-85.06	0.00
5,800.0	6.85	11.00	5,765.5	2,616.5	515.7	172.3	591,882.20	473,961.70	-85.38	0.00
5,900.0	6.85	11.00	5,864.8	2,715.8	527.4	174.6	591,884.48	473,973.41	-85.71	0.00
6,000.0	6.85	11.00	5,964.0	2,815.0	539.2	176.9	591,886.75	473,985.12	-86.03	0.00
6,100.0	6.85	11.00	6,063.3	2,914.3	550.9	179.2	591,889.03	473,996.83	-86.36	0.00
6,200.0	6.85	11.00	6,162.6	3,013.6	562.6	181.4	591,891.30	474,008.54	-86.68	0.00
6,300.0	6.85	11.00	6,261.9	3,112.9	574.3	183.7	591,893.58	474,020.24	-87.00	0.00



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6,400.0	6.85	11.00	6,381.2	3,212.2	588.0	186.0	591,895.86	474,031.95	-87.33	0.00
6,500.0	6.85	11.00	6,460.5	3,311.5	597.7	188.3	591,898.13	474,043.66	-87.65	0.00
6,600.0	6.85	11.00	6,559.8	3,410.8	609.4	190.6	591,900.41	474,055.37	-87.97	0.00
6,678.8	6.85	11.00	6,638.0	3,489.0	618.6	192.3	591,902.20	474,064.59	-88.23	0.00
1st Bone Spring Sand										
6,700.0	6.85	11.00	6,659.0	3,510.0	621.1	192.8	591,902.68	474,067.08	-88.30	0.00
6,800.0	6.85	11.00	6,758.3	3,609.3	632.8	195.1	591,904.96	474,078.78	-88.62	0.00
6,900.0	6.85	11.00	6,857.6	3,708.6	644.5	197.4	591,907.23	474,090.49	-88.95	0.00
7,000.0	6.85	11.00	6,956.9	3,807.9	656.2	199.7	591,909.51	474,102.20	-89.27	0.00
7,100.0	6.85	11.00	7,056.2	3,907.2	667.9	201.9	591,911.79	474,113.91	-89.59	0.00
7,200.0	6.85	11.00	7,155.5	4,006.5	679.7	204.2	591,914.06	474,125.61	-89.92	0.00
7,257.9	6.85	11.00	7,213.0	4,064.0	686.4	205.5	591,915.38	474,132.40	-90.11	0.00
2nd Bone Spring Sand										
7,300.0	6.85	11.00	7,254.8	4,105.8	691.4	206.5	591,916.34	474,137.32	-90.24	0.00
7,400.0	6.85	11.00	7,354.1	4,205.1	703.1	208.8	591,918.61	474,149.03	-90.57	0.00
7,430.2	6.85	11.00	7,384.0	4,235.0	706.6	209.4	591,919.30	474,152.56	-90.66	0.00
2nd Bone Spring Lime										
7,455.3	6.85	11.00	7,409.0	4,260.0	709.5	210.0	591,919.87	474,155.51	-90.74	0.00
9 5/8" Intermediate Casing										
7,500.0	6.85	11.00	7,453.3	4,304.3	714.8	211.0	591,920.89	474,160.74	-90.89	0.00
7,600.0	6.85	11.00	7,552.6	4,403.6	726.5	213.3	591,923.16	474,172.45	-91.21	0.00
7,700.0	6.85	11.00	7,651.9	4,502.9	738.2	215.6	591,925.44	474,184.15	-91.54	0.00
7,800.0	6.85	11.00	7,751.2	4,602.2	749.9	217.9	591,927.72	474,195.86	-91.88	0.00
7,900.0	6.85	11.00	7,850.5	4,701.5	761.6	220.1	591,929.99	474,207.57	-92.18	0.00
8,000.0	6.85	11.00	7,949.8	4,800.8	773.3	222.4	591,932.27	474,219.28	-92.51	0.00
8,100.0	6.85	11.00	8,049.1	4,900.1	785.0	224.7	591,934.54	474,230.99	-92.83	0.00
8,200.0	6.85	11.00	8,148.3	4,999.3	796.7	227.0	591,936.82	474,242.69	-93.16	0.00



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8,300.0	6.85	11.00	8,247.6	5,098.6	808.4	229.2	591,939.10	474,254.40	-93.48	0.00
8,400.0	6.85	11.00	8,346.9	5,197.9	820.1	231.5	591,941.37	474,266.11	-93.80	0.00
8,500.0	6.85	11.00	8,446.2	5,297.2	831.9	233.8	591,943.65	474,277.82	-94.13	0.00
8,600.0	6.85	11.00	8,545.5	5,396.5	843.6	236.1	591,945.92	474,289.53	-94.45	0.00
8,700.0	6.85	11.00	8,644.8	5,495.8	855.3	238.3	591,948.20	474,301.23	-94.78	0.00
8,732.5	6.85	11.00	8,677.0	5,528.0	859.1	239.1	591,948.94	474,305.03	-94.88	0.00
3rd Bone Spring Sand										
8,800.0	6.85	11.00	8,744.1	5,595.1	867.0	240.6	591,950.47	474,312.94	-95.10	0.00
8,900.0	6.85	11.00	8,843.3	5,694.3	878.7	242.9	591,952.75	474,324.65	-95.42	0.00
9,000.0	6.85	11.00	8,942.6	5,793.6	890.4	245.2	591,955.03	474,336.36	-95.75	0.00
9,016.0	6.85	11.00	8,958.5	5,809.5	892.3	245.5	591,955.39	474,338.23	-95.80	0.00
9,080.8	4.29	11.00	9,033.0	5,884.0	899.4	246.9	591,956.78	474,345.36	-96.00	3.42
Wolfcamp										
9,100.0	3.97	11.00	9,042.1	5,893.1	900.0	247.0	591,956.90	474,346.01	-96.01	3.42
9,200.0	0.55	11.00	9,142.0	5,993.0	903.9	247.8	591,957.65	474,349.88	-96.12	3.42
9,216.0	0.00	0.00	9,158.0	6,009.0	904.0	247.8	591,957.67	474,349.95	-96.12	3.42
9,300.0	0.00	269.00	9,242.0	6,093.0	904.0	247.8	591,957.67	474,349.95	-96.12	0.00
9,316.0	0.00	269.00	9,258.0	6,109.0	904.0	247.8	591,957.67	474,349.95	-96.12	0.00
9,400.0	9.49	269.00	9,341.7	6,192.7	903.9	240.9	591,950.73	474,349.83	-89.30	11.30
9,500.0	20.79	269.00	9,438.0	6,289.0	903.4	214.8	591,924.66	474,349.38	-63.66	11.30
9,600.0	32.08	269.00	9,527.4	6,378.4	902.6	170.4	591,880.22	474,346.60	-19.95	11.30
9,700.0	43.38	269.00	9,606.4	6,457.4	901.6	109.3	591,819.13	474,347.53	40.14	11.30
9,800.0	54.68	269.00	9,671.8	6,522.8	900.3	33.9	591,743.76	474,346.22	114.28	11.30
9,900.0	65.98	269.00	9,721.3	6,572.3	898.7	-52.8	591,657.02	474,344.70	199.59	11.30
10,000.0	77.27	269.00	9,752.7	6,603.7	897.1	-147.6	591,562.29	474,343.05	292.76	11.30
10,100.0	88.57	269.00	9,765.0	6,618.0	895.4	-246.6	591,463.23	474,341.32	390.20	11.30
10,123.0	91.17	269.00	9,765.1	6,616.1	895.0	-269.6	591,440.23	474,340.92	412.82	11.30



Morcor Engineering
Morcor Standard Plan

MORCOR
ENGINEERING

Company: Caza Operating LLC
Project: Alisa Ogden 15 - 4H
Site: Alisa Ogden 15 - 4H
Well: Alisa Ogden 15 - 4H
Wellbore: Alisa Ogden 15 - 4H
Design: 181017 Alisa Ogden 15 - 4H

Local Co-ordinate Reference: Well Alisa Ogden 15 - 4H
TVD Reference: WELL @ 3149.0usft (Original Well Elev)
MD Reference: WELL @ 3149.0usft (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)	DLog (°/100usft)
10,200.0	91.17	269.00	9,763.5	6,614.5	893.6	-346.6	591,363.26	474,339.58	488.53	0.00
10,300.0	91.17	269.00	9,761.5	6,612.5	891.9	-446.6	591,263.30	474,337.83	588.85	0.00
10,400.0	91.17	269.00	9,759.4	6,610.4	890.1	-546.5	591,163.33	474,336.09	685.17	0.00
10,500.0	91.17	269.00	9,757.4	6,608.4	888.4	-646.5	591,063.37	474,334.34	783.49	0.00
10,600.0	91.17	269.00	9,755.4	6,606.4	886.6	-746.5	590,963.40	474,332.60	881.82	0.00
10,700.0	91.17	269.00	9,753.3	6,604.3	884.9	-846.4	590,863.44	474,330.85	980.14	0.00
10,800.0	91.17	269.00	9,751.3	6,602.3	883.1	-946.4	590,763.48	474,329.11	1,078.46	0.00
10,900.0	91.17	269.00	9,749.2	6,600.2	881.4	-1,046.3	590,663.51	474,327.36	1,176.79	0.00
11,000.0	91.17	269.00	9,747.2	6,598.2	879.7	-1,146.3	590,563.55	474,325.62	1,275.11	0.00
11,100.0	91.17	269.00	9,745.1	6,596.1	877.9	-1,246.3	590,463.59	474,323.87	1,373.43	0.00
11,200.0	91.17	269.00	9,743.1	6,594.1	876.2	-1,346.2	590,363.62	474,322.13	1,471.75	0.00
11,300.0	91.17	269.00	9,741.1	6,592.1	874.4	-1,446.2	590,263.66	474,320.38	1,570.08	0.00
11,400.0	91.17	269.00	9,739.0	6,590.0	872.7	-1,546.2	590,163.69	474,318.64	1,668.40	0.00
11,500.0	91.17	269.00	9,737.0	6,588.0	870.9	-1,646.1	590,063.73	474,316.89	1,766.72	0.00
11,600.0	91.17	269.00	9,734.9	6,585.9	869.2	-1,746.1	589,963.77	474,315.15	1,865.04	0.00
11,700.0	91.17	269.00	9,732.9	6,583.9	867.4	-1,846.1	589,863.80	474,313.40	1,963.37	0.00
11,800.0	91.17	269.00	9,730.9	6,581.9	865.7	-1,946.0	589,763.84	474,311.66	2,061.69	0.00
11,900.0	91.17	269.00	9,728.8	6,579.8	863.9	-2,046.0	589,663.87	474,309.91	2,160.01	0.00
12,000.0	91.17	269.00	9,726.8	6,577.8	862.2	-2,145.9	589,563.91	474,308.17	2,258.34	0.00
12,100.0	91.17	269.00	9,724.7	6,575.7	860.5	-2,245.9	589,463.95	474,306.42	2,356.66	0.00
12,200.0	91.17	269.00	9,722.7	6,573.7	858.7	-2,345.9	589,363.98	474,304.68	2,454.98	0.00
12,300.0	91.17	269.00	9,720.6	6,571.6	857.0	-2,445.8	589,264.02	474,302.93	2,553.30	0.00
12,400.0	91.17	269.00	9,718.6	6,569.6	855.2	-2,545.8	589,164.05	474,301.19	2,651.63	0.00
12,500.0	91.17	269.00	9,716.6	6,567.6	853.5	-2,645.8	589,064.09	474,299.44	2,749.95	0.00
12,600.0	91.17	269.00	9,714.5	6,565.5	851.7	-2,745.7	588,964.13	474,297.70	2,848.27	0.00
12,700.0	91.17	269.00	9,712.5	6,563.5	850.0	-2,845.7	588,864.16	474,295.96	2,946.59	0.00
12,800.0	91.17	269.00	9,710.4	6,561.4	848.2	-2,945.7	588,764.20	474,294.21	3,044.92	0.00



Morcor Engineering
Morcor Standard Plan

MORCOR
ENGINEERING

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Alisa Ogden 15 - 4H
Project:	Alisa Ogden 15 - 4H	TVD Reference:	WELL @ 3149.0usft (Original Well Elev)
Site:	Alisa Ogden 15 - 4H	MD Reference:	WELL @ 3149.0usft (Original Well Elev)
Well:	Alisa Ogden 15 - 4H	North Reference:	Grid
Wellbore:	Alisa Ogden 15 - 4H	Survey Calculation Method:	Minimum Curvature
Design:	181017 Alisa Ogden 15 - 4H	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)	DLog (°/100usft)	
12,900.0	91.17	269.00	9,708.4	6,559.4	846.5	-3,045.6	588,664.23	474,292.47	3,143.24	0.00	
13,000.0	91.17	269.00	9,706.3	6,557.3	844.8	-3,145.6	588,564.27	474,290.72	3,241.56	0.00	
13,100.0	91.17	269.00	9,704.3	6,555.3	843.0	-3,245.5	588,464.31	474,288.98	3,339.89	0.00	
13,200.0	91.17	269.00	9,702.3	6,553.3	841.3	-3,345.5	588,364.34	474,287.23	3,438.21	0.00	
13,300.0	91.17	269.00	9,700.2	6,551.2	839.5	-3,445.5	588,264.38	474,285.49	3,536.53	0.00	
13,400.0	91.17	269.00	9,698.2	6,549.2	837.8	-3,545.4	588,164.41	474,283.74	3,634.85	0.00	
13,500.0	91.17	269.00	9,696.1	6,547.1	836.0	-3,645.4	588,064.45	474,282.00	3,733.18	0.00	
13,600.0	91.17	269.00	9,694.1	6,545.1	834.3	-3,745.4	587,964.49	474,280.25	3,831.50	0.00	
13,700.0	91.17	269.00	9,692.1	6,543.1	832.5	-3,845.3	587,864.52	474,278.51	3,929.82	0.00	
13,800.0	91.17	269.00	9,690.0	6,541.0	830.8	-3,945.3	587,764.56	474,276.76	4,028.14	0.00	
13,900.0	91.17	269.00	9,688.0	6,539.0	829.1	-4,045.3	587,664.60	474,275.02	4,126.47	0.00	
14,000.0	91.17	269.00	9,685.9	6,536.9	827.3	-4,145.2	587,564.63	474,273.27	4,224.79	0.00	
14,100.0	91.17	269.00	9,683.9	6,534.9	825.6	-4,245.2	587,464.67	474,271.53	4,323.11	0.00	
14,200.0	91.17	269.00	9,681.8	6,532.8	823.8	-4,345.2	587,364.70	474,269.78	4,421.44	0.00	
14,300.0	91.17	269.00	9,679.8	6,530.8	822.1	-4,445.1	587,264.74	474,268.04	4,519.76	0.00	
14,400.0	91.17	269.00	9,677.8	6,528.8	820.3	-4,545.1	587,164.78	474,266.29	4,618.08	0.00	
14,500.0	91.17	269.00	9,675.7	6,526.7	818.6	-4,645.0	587,064.81	474,264.55	4,716.40	0.00	
14,600.0	91.17	269.00	9,673.7	6,524.7	816.8	-4,745.0	586,964.85	474,262.80	4,814.73	0.00	
14,700.0	91.17	269.00	9,671.6	6,522.6	815.1	-4,845.0	586,864.88	474,261.06	4,913.05	0.00	
14,750.0	91.17	269.00	9,670.6	6,521.6	814.2	-4,895.0	586,814.90	474,260.19	4,962.21	0.00	
5 1/2" Production Casing											



Morcor Engineering
Morcor Standard Plan

MORCOR
ENGINEERING

Company: Caza Operating LLC
Project: Alisa Ogden 15 - 4H
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Wellbore: Alisa Ogden 15 - 4H
Design: 181017 Alisa Ogden 15 - 4H

Local Co-ordinate Reference: Well Alisa Ogden 15 - 4H
TVD Reference: WELL @ 3149.0usft (Original Well Elev)
MD Reference: WELL @ 3149.0usft (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 (")
405.0	405.0	13 3/8" Surface Casing	13-3/8	17-1/2
7,455.3	7,409.0	9 5/8" Intermediate Casing	9-5/8	12-1/4
14,750.0	9,870.8	5 1/2" Production Casing	5-1/2	8-3/4
120.0	120.0	20" Conductor	20	26

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")
9,090.8	9,033.0	Wolfcamp		0.00	
2,095.1	2,087.0	Delaware		0.00	
5,609.2	5,578.0	Bone Spring		0.00	
1,206.4	1,204.0	Top of Salt		0.00	
6,678.8	6,638.0	1st Bone Spring Sand		0.00	
4,033.9	4,012.0	Brushy Canyon		0.00	
1,912.8	1,906.0	Base of Salt		0.00	
430.0	430.0	Salado		0.00	
7,257.9	7,213.0	2nd Bone Spring Sand		0.00	
2,851.5	2,838.0	Cherry Canyon		0.00	
7,430.2	7,384.0	2nd Bone Spring Lime		0.00	
8,732.5	8,677.0	3rd Bone Spring Sand		0.00	

Checked By: _____ Approved By: _____ Date: _____

Project: Alisa Ogden 15 - 4H
 Site: Alisa Ogden 15 - 4H
 Well: Alisa Ogden 15 - 4H
 Wellbore: Alisa Ogden 15 - 4H
 Design: 181017 Alisa Ogden 15 - 4H



Azimuths to Grid North
 True North: -0.09°
 Magnetic North: 6.88°
 Magnetic Field
 Strength: 47869.9snT
 Dip Angle: 59.98°
 Date: 10/17/2018
 Model: IGRF2010

CASING DETAILS

TVD	MD	Name	Size
120.0	120.0	20" Conductor	20
405.0	405.0	13 3/8" Surface Casing	13-3/8
7409.0	7455.3	9 5/8" Intermediate Casing	9-5/8
9670.6	14750.0	5 1/2" Production Casing	5-1/2

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
430.0	430.0	Salado	0.00	
1204.0	1206.4	Top of Salt	0.00	
1906.0	1912.8	Base of Salt	0.00	
2087.0	2095.1	Delaware	0.00	
2838.0	2851.5	Cherry Canyon	0.00	
4012.0	4033.9	Brushy Canyon	0.00	
5576.0	5609.2	Bone Spring	0.00	
6638.0	6678.8	1st Bone Spring Sand	0.00	
7213.0	7257.9	2nd Bone Spring Sand	0.00	
7384.0	7430.2	2nd Bone Spring Lime	0.00	
8677.0	8732.5	3rd Bone Spring Sand	0.00	
9033.0	9090.8	Wolfcamp	0.00	

