

**NM OIL CONSERVATION
ARTESIA DISTRICT**

OCT 17 2018

RECEIVED



30-015-45350

Caza Operating LLC

Alisa Ogden 15 - 3H
Alisa Ogden 15 - 3H
Alisa Ogden 15-3H
Alisa Ogden 15-3H

Plan: 181016 Alisa Ogden 15-3H

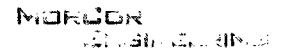
Morcor Standard Plan

17 October, 2018

**MORCOR
ENGINEERING**



Morcor Engineering
Morcor Standard Plan



Company: Caza Operating LLC
Project: Alisa Ogden 15 - 3H
Site: Alisa Ogden 15 - 3H
Well: Alisa Ogden 15-3H
Wellbore: Alisa Ogden 15-3H
Design: 181016 Alisa Ogden 15-3H

Local Co-ordinate Reference: Well Alisa Ogden 15-3H
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

Project	Alisa Ogden 15 - 3H		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Alisa Ogden 15 - 3H		
Site Position:		Northing:	473,505.99 usft
From:	Lat/Long	Easting:	591,709.77 usft
Position Uncertainty:	1.0 usft	Slot Radius:	17-1/2 "
		Latitude:	32° 18' 5.890 N
		Longitude:	104° 10' 13.080 W
		Grid Convergence:	0.09 "

Well	Alisa Ogden 15-3H		
Well Position	+N-S	0.0 usft	Latitude: 32° 18' 5.890 N
	+E-W	0.0 usft	Longitude: 104° 10' 13.080 W
Position Uncertainty	1.0 usft	Wellhead Elevation:	usft
		Ground Level:	3,127.0 usft

Wellbore	Alisa Ogden 15-3H		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	10/17/2018	(°) 6.96
			Dip Angle (°) 59.98
			Field Strength (nT) 47,870

Design	181016 Alisa Ogden 15-3H		
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 (°) 263.20

Survey Tool Program	Date 10/17/2018		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
0.0	14,186.0	181016 Alisa Ogden 15-3H (Alisa Ogden 1	MWD
			Description
			MWD - Standard



Morcor Engineering
Morcor Standard Plan

MORCOR
2018.05.01

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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)	OLeg (°/100usft)
0.0	0.00	0.00	0.0	-3,149.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
100.0	0.00	153.00	100.0	-3,049.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
120.0	0.00	153.00	120.0	-3,029.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
20" Conductor										
200.0	0.00	153.00	200.0	-2,949.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
300.0	0.00	153.00	300.0	-2,849.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
400.0	0.00	153.00	400.0	-2,749.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
405.0	0.00	153.00	405.0	-2,744.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
13 3/8" Surface Casing										
430.0	0.00	153.00	430.0	-2,719.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
Salado										
500.0	0.00	153.00	500.0	-2,649.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
600.0	0.00	153.00	600.0	-2,549.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
700.0	0.00	153.00	700.0	-2,449.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
800.0	0.00	153.00	800.0	-2,349.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
900.0	0.00	153.00	900.0	-2,249.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,000.0	0.00	153.00	1,000.0	-2,149.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,100.0	0.00	153.00	1,100.0	-2,049.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,200.0	0.00	153.00	1,200.0	-1,949.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,204.0	0.00	153.00	1,204.0	-1,945.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
Top of Salt										
1,300.0	0.00	153.00	1,300.0	-1,849.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,400.0	0.00	153.00	1,400.0	-1,749.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,500.0	0.00	153.00	1,500.0	-1,649.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,600.0	0.00	153.00	1,600.0	-1,549.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,700.0	0.00	153.00	1,700.0	-1,449.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,800.0	0.00	153.00	1,800.0	-1,349.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
1,900.0	0.00	153.00	1,900.0	-1,249.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00



Morcor Engineering
Morcor Standard Plan

MORCOR
2013.05.01 21:00

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1,906.0	0.00	153.00	1,906.0	-1,243.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
Base of Salt										
2,000.0	0.00	153.00	2,000.0	-1,149.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
2,087.0	0.00	153.00	2,087.0	-1,062.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
Delaware										
2,100.0	0.00	153.00	2,100.0	-1,049.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
2,200.0	0.00	153.00	2,200.0	-949.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
2,300.0	0.00	153.00	2,300.0	-849.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
2,400.0	0.00	153.00	2,400.0	-749.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
2,500.0	0.00	153.00	2,500.0	-649.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
2,600.0	0.00	153.00	2,600.0	-549.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
2,700.0	0.00	153.00	2,700.0	-449.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
2,800.0	0.00	153.00	2,800.0	-349.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
2,838.0	0.00	153.00	2,838.0	-311.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
Cherry Canyon										
2,900.0	0.00	153.00	2,900.0	-249.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
3,000.0	0.00	153.00	3,000.0	-149.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
3,100.0	0.00	153.00	3,100.0	-49.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
3,200.0	0.00	153.00	3,200.0	51.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
3,300.0	0.00	153.00	3,300.0	151.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
3,400.0	0.00	153.00	3,400.0	251.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
3,500.0	0.00	153.00	3,500.0	351.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
3,600.0	0.00	153.00	3,600.0	451.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
3,660.0	0.00	153.00	3,660.0	511.0	0.0	0.0	591,709.77	473,505.99	0.00	0.00
Start Build 3.25										
3,700.0	1.30	153.00	3,700.0	551.0	-0.4	0.2	591,709.97	473,505.59	-0.16	3.25
3,800.0	4.55	153.00	3,799.9	650.9	-5.0	2.5	591,712.29	473,501.04	-1.92	3.25



Morcor Engineering
Morcor Standard Plan

MORCOR
ESTABLISHED 1980

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3,860.0	6.50	153.00	3,859.6	710.6	-10.1	5.1	591,714.91	473,495.89	-3.91	3.25
Start 4600.0 hold at 3860.0 MD										
3,900.0	6.50	153.00	3,899.3	750.3	-14.1	7.2	591,716.97	473,491.86	-5.48	0.00
4,000.0	6.50	153.00	3,998.7	849.7	-24.2	12.3	591,722.11	473,481.77	-9.39	0.00
4,013.4	6.50	153.00	4,012.0	863.0	-25.6	13.0	591,722.79	473,480.42	-9.91	0.00
Brushy Canyon										
4,100.0	6.50	153.00	4,098.0	949.0	-34.3	17.5	591,727.24	473,471.68	-13.29	0.00
4,200.0	6.50	153.00	4,197.4	1,048.4	-44.4	22.6	591,732.38	473,461.60	-17.20	0.00
4,300.0	6.50	153.00	4,296.7	1,147.7	-54.5	27.8	591,737.52	473,451.51	-21.11	0.00
4,400.0	6.50	153.00	4,396.1	1,247.1	-64.6	32.9	591,742.66	473,441.43	-25.02	0.00
4,500.0	6.50	153.00	4,495.5	1,346.5	-74.7	38.0	591,747.80	473,431.34	-28.93	0.00
4,600.0	6.50	153.00	4,594.8	1,445.8	-84.7	43.2	591,752.94	473,421.25	-32.84	0.00
4,700.0	6.50	153.00	4,694.2	1,545.2	-94.8	48.3	591,758.08	473,411.17	-36.75	0.00
4,800.0	6.50	153.00	4,793.5	1,644.5	-104.9	53.5	591,763.22	473,401.08	-40.66	0.00
4,900.0	6.50	153.00	4,892.9	1,743.9	-115.0	58.6	591,768.36	473,390.99	-44.57	0.00
5,000.0	6.50	153.00	4,992.2	1,843.2	-125.1	63.7	591,773.50	473,380.91	-48.48	0.00
5,100.0	6.50	153.00	5,091.6	1,942.6	-135.2	68.9	591,778.64	473,370.82	-52.38	0.00
5,200.0	6.50	153.00	5,191.0	2,042.0	-145.3	74.0	591,783.78	473,360.73	-56.29	0.00
5,300.0	6.50	153.00	5,290.3	2,141.3	-155.3	79.2	591,788.92	473,350.65	-60.20	0.00
5,400.0	6.50	153.00	5,389.7	2,240.7	-165.4	84.3	591,794.06	473,340.56	-64.11	0.00
5,500.0	6.50	153.00	5,489.0	2,340.0	-175.5	89.4	591,799.19	473,330.47	-68.02	0.00
5,587.5	6.50	153.00	5,576.0	2,427.0	-184.3	93.9	591,803.69	473,321.64	-71.44	0.00
Bone Spring										
5,600.0	6.50	153.00	5,588.4	2,439.4	-185.6	94.6	591,804.33	473,320.39	-71.93	0.00
5,637.9	6.50	153.00	5,626.0	2,477.0	-189.4	96.5	591,806.28	473,316.57	-73.41	0.00
9 5/8" Intermediate Casing										
5,700.0	6.50	153.00	5,687.7	2,538.7	-195.7	99.7	591,809.47	473,310.30	-75.84	0.00



Morcor Engineering
Morcor Standard Plan

MORCOR
2018.11.15

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5,800.0	6.50	153.00	5,787.1	2,638.1	-205.8	104.8	591,814.61	473,300.21	-79.75	0.00
5,900.0	6.50	153.00	5,886.5	2,737.5	-215.9	110.0	591,819.75	473,290.13	-83.68	0.00
6,000.0	6.50	153.00	5,985.8	2,836.8	-225.9	115.1	591,824.89	473,280.04	-87.57	0.00
6,100.0	6.50	153.00	6,085.2	2,936.2	-236.0	120.3	591,830.03	473,269.95	-91.47	0.00
6,200.0	6.50	153.00	6,184.5	3,035.5	-246.1	125.4	591,835.17	473,259.87	-95.38	0.00
6,300.0	6.50	153.00	6,283.9	3,134.9	-256.2	130.5	591,840.31	473,249.78	-99.29	0.00
6,400.0	6.50	153.00	6,383.2	3,234.2	-266.3	135.7	591,845.45	473,239.70	-103.20	0.00
6,500.0	6.50	153.00	6,482.6	3,333.6	-276.4	140.8	591,850.59	473,229.61	-107.11	0.00
6,600.0	6.50	153.00	6,582.0	3,433.0	-286.5	146.0	591,855.73	473,219.52	-111.02	0.00
6,656.4	6.50	153.00	6,638.0	3,489.0	-292.2	148.9	591,858.63	473,213.83	-113.22	0.00
1st Bone Spring Sand										
6,700.0	6.50	153.00	6,681.3	3,532.3	-296.6	151.1	591,860.87	473,209.44	-114.93	0.00
6,800.0	6.50	153.00	6,780.7	3,631.7	-306.6	156.2	591,866.01	473,199.35	-118.84	0.00
6,900.0	6.50	153.00	6,880.0	3,731.0	-316.7	161.4	591,871.15	473,189.26	-122.75	0.00
7,000.0	6.50	153.00	6,979.4	3,830.4	-326.8	166.5	591,876.28	473,179.18	-126.66	0.00
7,100.0	6.50	153.00	7,078.7	3,929.7	-336.9	171.7	591,881.42	473,169.09	-130.56	0.00
7,200.0	6.50	153.00	7,178.1	4,029.1	-347.0	176.8	591,886.56	473,159.00	-134.47	0.00
7,235.1	6.50	153.00	7,213.0	4,064.0	-350.5	178.6	591,888.37	473,155.46	-135.85	0.00
2nd Bone Spring Sand										
7,300.0	6.50	153.00	7,277.5	4,128.5	-357.1	181.9	591,891.70	473,148.92	-138.38	0.00
7,400.0	6.50	153.00	7,376.8	4,227.8	-367.2	187.1	591,896.84	473,138.83	-142.29	0.00
7,407.2	6.50	153.00	7,384.0	4,235.0	-367.9	187.4	591,897.21	473,138.10	-142.57	0.00
2nd Bone Spring Lime										
7,500.0	6.50	153.00	7,476.2	4,327.2	-377.2	192.2	591,901.98	473,128.74	-146.20	0.00
7,600.0	6.50	153.00	7,575.5	4,426.5	-387.3	197.4	591,907.12	473,118.66	-150.11	0.00
7,700.0	6.50	153.00	7,674.9	4,525.9	-397.4	202.5	591,912.26	473,108.57	-154.02	0.00
7,800.0	6.50	153.00	7,774.2	4,625.2	-407.5	207.6	591,917.40	473,098.48	-157.93	0.00
7,900.0	6.50	153.00	7,873.6	4,724.6	-417.6	212.8	591,922.54	473,088.40	-161.84	0.00



Morcor Engineering
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NO. 10/17/2018
10/17/2018 8:30:05AM

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8,000.0	6.50	153.00	7,973.0	4,824.0	-427.7	217.9	591,927.68	473,078.31	-165.75	0.00
8,100.0	6.50	153.00	8,072.3	4,923.3	-437.8	223.1	591,932.82	473,068.23	-169.65	0.00
8,200.0	6.50	153.00	8,171.7	5,022.7	-447.9	228.2	591,937.96	473,058.14	-173.56	0.00
8,300.0	6.50	153.00	8,271.0	5,122.0	-457.9	233.3	591,943.10	473,048.05	-177.47	0.00
8,400.0	6.50	153.00	8,370.4	5,221.4	-468.0	238.5	591,948.24	473,037.97	-181.38	0.00
8,460.0	6.50	153.00	8,430.0	5,281.0	-474.1	241.6	591,951.32	473,031.91	-183.73	0.00
Start Drop -3.25										
8,500.0	5.20	153.00	8,469.8	5,320.8	-477.7	243.4	591,953.17	473,028.28	-185.13	3.25
8,600.0	1.95	153.00	8,569.6	5,420.6	-483.3	246.2	591,956.00	473,022.73	-187.29	3.25
8,660.0	0.00	0.00	8,629.6	5,480.6	-484.2	246.7	591,956.46	473,021.82	-187.64	3.25
Start 100.0 hold at 8660.0 MD										
8,700.0	0.00	268.90	8,669.6	5,520.6	-484.2	246.7	591,956.46	473,021.82	-187.64	0.00
8,707.4	0.00	268.90	8,677.0	5,528.0	-484.2	246.7	591,956.46	473,021.82	-187.64	0.00
3rd Bone Spring Sand										
8,760.0	0.00	268.90	8,729.6	5,580.6	-484.2	246.7	591,956.46	473,021.82	-187.64	0.00
Start Build 11.27										
8,800.0	4.51	268.90	8,769.5	5,620.5	-484.2	245.1	591,954.89	473,021.79	-186.07	11.27
8,900.0	15.78	268.90	8,867.8	5,718.8	-484.5	227.5	591,937.31	473,021.45	-168.58	11.27
9,000.0	27.05	268.90	8,960.8	5,811.8	-485.2	191.1	591,900.87	473,020.75	-132.31	11.27
9,085.1	36.64	268.90	9,033.0	5,884.0	-486.1	146.3	591,856.02	473,019.89	-87.67	11.27
Wolfcamp										
9,100.0	38.31	268.90	9,044.8	5,895.8	-486.3	137.2	591,846.98	473,019.71	-78.67	11.27
9,200.0	49.58	268.90	9,116.7	5,967.7	-487.6	67.9	591,777.70	473,018.36	-9.73	11.27
9,300.0	60.85	268.90	9,173.6	6,024.6	-489.2	-14.1	591,695.71	473,016.81	71.87	11.27
9,400.0	72.12	268.90	9,213.5	6,064.5	-490.9	-105.6	591,604.18	473,015.05	162.96	11.27
9,500.0	83.39	268.90	9,234.6	6,085.6	-492.8	-203.1	591,506.63	473,013.18	260.05	11.27
9,567.0	90.94	268.90	9,237.9	6,088.9	-494.1	-270.0	591,439.78	473,011.90	326.59	11.27
Start 4619.0 hold at 9567.0 MD										



Morcor Engineering
Morcor Standard Plan

NOTES
English Units

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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)
9,600.0	90.94	268.90	9,237.4	6,088.4	-494.7	-303.0	591,406.79	473,011.26	359.42	0.00
9,700.0	90.94	268.90	9,235.8	6,088.8	-496.6	-402.9	591,306.82	473,009.34	458.91	0.00
9,800.0	90.94	268.90	9,234.1	6,085.1	-498.6	-502.9	591,206.85	473,007.42	558.41	0.00
9,900.0	90.94	268.90	9,232.5	6,083.5	-500.5	-602.9	591,106.88	473,005.50	657.90	0.00
10,000.0	90.94	268.90	9,230.8	6,081.8	-502.4	-702.9	591,006.91	473,003.58	757.39	0.00
10,100.0	90.94	268.90	9,229.2	6,080.2	-504.3	-802.8	590,906.95	473,001.66	856.88	0.00
10,200.0	90.94	268.90	9,227.6	6,078.6	-506.2	-902.8	590,806.98	472,999.75	956.37	0.00
10,300.0	90.94	268.90	9,225.9	6,076.9	-508.2	-1,002.8	590,707.01	472,997.83	1,055.87	0.00
10,400.0	90.94	268.90	9,224.3	6,075.3	-510.1	-1,102.7	590,607.04	472,995.91	1,155.36	0.00
10,500.0	90.94	268.90	9,222.6	6,073.6	-512.0	-1,202.7	590,507.07	472,993.99	1,254.85	0.00
10,600.0	90.94	268.90	9,221.0	6,072.0	-513.9	-1,302.7	590,407.11	472,992.07	1,354.34	0.00
10,700.0	90.94	268.90	9,219.4	6,070.4	-515.8	-1,402.6	590,307.14	472,990.15	1,453.84	0.00
10,800.0	90.94	268.90	9,217.7	6,068.7	-517.8	-1,502.6	590,207.17	472,988.23	1,553.33	0.00
10,900.0	90.94	268.90	9,216.1	6,067.1	-519.7	-1,602.6	590,107.20	472,986.31	1,652.82	0.00
11,000.0	90.94	268.90	9,214.4	6,065.4	-521.6	-1,702.5	590,007.23	472,984.39	1,752.31	0.00
11,100.0	90.94	268.90	9,212.8	6,063.8	-523.5	-1,802.5	589,907.26	472,982.47	1,851.80	0.00
11,200.0	90.94	268.90	9,211.2	6,062.2	-525.4	-1,902.5	589,807.30	472,980.55	1,951.30	0.00
11,300.0	90.94	268.90	9,209.5	6,060.5	-527.4	-2,002.4	589,707.33	472,978.63	2,050.79	0.00
11,400.0	90.94	268.90	9,207.9	6,058.9	-529.3	-2,102.4	589,607.36	472,976.71	2,150.28	0.00
11,500.0	90.94	268.90	9,206.2	6,057.2	-531.2	-2,202.4	589,507.39	472,974.79	2,249.77	0.00
11,600.0	90.94	268.90	9,204.6	6,055.6	-533.1	-2,302.3	589,407.42	472,972.87	2,349.27	0.00
11,700.0	90.94	268.90	9,203.0	6,054.0	-535.0	-2,402.3	589,307.46	472,970.95	2,448.76	0.00
11,800.0	90.94	268.90	9,201.3	6,052.3	-537.0	-2,502.3	589,207.49	472,969.03	2,548.25	0.00
11,900.0	90.94	268.90	9,199.7	6,050.7	-538.9	-2,602.2	589,107.52	472,967.11	2,647.74	0.00
12,000.0	90.94	268.90	9,198.0	6,049.0	-540.8	-2,702.2	589,007.55	472,965.19	2,747.24	0.00
12,100.0	90.94	268.90	9,196.4	6,047.4	-542.7	-2,802.2	588,907.58	472,963.28	2,846.73	0.00
12,200.0	90.94	268.90	9,194.8	6,045.8	-544.6	-2,902.1	588,807.62	472,961.36	2,946.22	0.00



Morcor Engineering
Morcor Standard Plan

MORCOR
ESTABLISHED 1988

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Design: 181016 Alisa Ogden 15-3H

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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)	DLog (°/100usft)
12,300.0	90.94	268.90	9,193.1	6,044.1	-546.6	-3,002.1	588,707.65	472,959.44	3,045.71	0.00
12,400.0	90.94	268.90	9,191.5	6,042.5	-548.5	-3,102.1	588,607.68	472,957.52	3,145.20	0.00
12,500.0	90.94	268.90	9,189.8	6,040.8	-550.4	-3,202.1	588,507.71	472,955.60	3,244.70	0.00
12,600.0	90.94	268.90	9,188.2	6,039.2	-552.3	-3,302.0	588,407.74	472,953.68	3,344.19	0.00
12,700.0	90.94	268.90	9,186.5	6,037.5	-554.2	-3,402.0	588,307.77	472,951.76	3,443.68	0.00
12,800.0	90.94	268.90	9,184.9	6,035.9	-556.2	-3,502.0	588,207.81	472,949.84	3,543.17	0.00
12,900.0	90.94	268.90	9,183.3	6,034.3	-558.1	-3,601.9	588,107.84	472,947.92	3,642.67	0.00
13,000.0	90.94	268.90	9,181.6	6,032.6	-560.0	-3,701.9	588,007.87	472,946.00	3,742.16	0.00
13,100.0	90.94	268.90	9,180.0	6,031.0	-561.9	-3,801.9	587,907.90	472,944.08	3,841.65	0.00
13,200.0	90.94	268.90	9,178.3	6,029.3	-563.8	-3,901.8	587,807.93	472,942.16	3,941.14	0.00
13,300.0	90.94	268.90	9,176.7	6,027.7	-565.7	-4,001.8	587,707.97	472,940.24	4,040.63	0.00
13,400.0	90.94	268.90	9,175.1	6,026.1	-567.7	-4,101.8	587,608.00	472,938.32	4,140.13	0.00
13,500.0	90.94	268.90	9,173.4	6,024.4	-569.6	-4,201.7	587,508.03	472,936.40	4,239.62	0.00
13,600.0	90.94	268.90	9,171.8	6,022.8	-571.5	-4,301.7	587,408.06	472,934.48	4,339.11	0.00
13,700.0	90.94	268.90	9,170.1	6,021.1	-573.4	-4,401.7	587,308.09	472,932.56	4,438.60	0.00
13,800.0	90.94	268.90	9,168.5	6,019.5	-575.3	-4,501.6	587,208.13	472,930.64	4,538.10	0.00
13,900.0	90.94	268.90	9,166.9	6,017.9	-577.3	-4,601.6	587,108.16	472,928.72	4,637.59	0.00
14,000.0	90.94	268.90	9,165.2	6,016.2	-579.2	-4,701.6	587,008.19	472,926.80	4,737.08	0.00
14,100.0	90.94	268.90	9,163.6	6,014.6	-581.1	-4,801.5	586,908.22	472,924.89	4,836.57	0.00
14,186.0	90.94	268.90	9,162.2	6,013.2	-582.8	-4,887.5	586,822.25	472,923.23	4,922.14	0.00

TD at 14186.0 - 5 1/2" Production Casing



Morcor Engineering
Morcor Standard Plan

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Casing Points

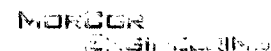
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
14,186.0	9,162.2	5 1/2" Production Casing	5-1/2	8-3/4
5,637.9	5,626.0	9 5/8" Intermediate Casing	9-5/8	12-1/4
120.0	120.0	20" Conductor	20	26
405.0	405.0	13 3/8" Surface Casing	13-3/8	17-1/2

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")
7,407.2	7,384.0	2nd Bone Spring Lime		0.00	
6,656.4	6,638.0	1st Bone Spring Sand		0.00	
5,587.5	5,576.0	Bone Spring		0.00	
1,204.0	1,204.0	Top of Salt		0.00	
8,707.4	8,677.0	3rd Bone Spring Sand		0.00	
2,838.0	2,838.0	Cherry Canyon		0.00	
1,906.0	1,906.0	Base of Salt		0.00	
7,235.1	7,213.0	2nd Bone Spring Sand		0.00	
4,013.4	4,012.0	Brushy Canyon		0.00	
430.0	430.0	Salado		0.00	
2,087.0	2,087.0	Delaware		0.00	
9,085.1	9,033.0	Wolfcamp		0.00	



Morcor Engineering
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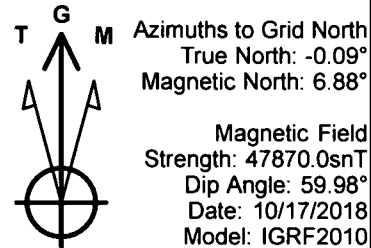
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Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,660.0	3,660.0	0.0	0.0	Start Build 3.25
3,860.0	3,859.6	-10.1	5.1	Start 4600.0 hold at 3860.0 MD
8,460.0	8,430.0	-474.1	241.6	Start Drop -3.25
8,660.0	8,629.6	-484.2	246.7	Start 100.0 hold at 8660.0 MD
8,760.0	8,729.6	-484.2	246.7	Start Build 11.27
9,567.0	9,237.9	-494.1	-270.0	Start 4619.0 hold at 9567.0 MD
14,186.0	9,162.2	-582.8	-4,887.5	TD at 14186.0

Checked By: _____ Approved By: _____ Date: _____

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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
5626.0	5637.9	9 5/8" Intermediate Casing	9-5/8
9162.2	14186.0	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	1204.0	Top of Salt	0.00	
1906.0	1906.0	Base of Salt	0.00	
2087.0	2087.0	Delaware	0.00	
2838.0	2838.0	Cherry Canyon	0.00	
4012.0	4013.4	Brushy Canyon	0.00	
5576.0	5587.5	Bone Spring	0.00	
6638.0	6656.4	1st Bone Spring Sand	0.00	
7213.0	7235.1	2nd Bone Spring Sand	0.00	
7384.0	7407.2	2nd Bone Spring Lime	0.00	
8677.0	8707.4	3rd Bone Spring Sand	0.00	
9033.0	9085.1	Wolfcamp	0.00	

