

Caza Oil and Gas

Black River

Mad River 13 State 5H

Mad River 13 State 5H

Mad River 13 State 5H

**NM OIL CONSERVATION
ARTESIO DISTRICT**

FEB 21 2017

RECEIVED

Plan: 20170215 Mad River 13 State 5H

MOJO Standard Plan

15 February, 2017

30 015 44062

MOJO Standard Plan

Company: Caiza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference: Well Mad River 13 State 5H
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Black River	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Mad River 13 State 5H		
Site Position:		Northing:	442,402.93 usft
From:	Lat/Long	Easting:	561,175.32 usft
Position Uncertainty:	1.0 usft	Slot Radius:	17-1/2 "
		Latitude:	32° 12' 58.061 N
		Longitude:	104° 8' 7.890 W
		Grid Convergence:	0.11 °

Well	Mad River 13 State 5H		
Well Position	+N-S +E-W	Northing: Easting:	442,402.93 usft 561,175.32 usft
Position Uncertainty	1.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 12' 58.061 N
		Longitude:	104° 8' 7.890 W
		Ground Level:	3,091.0 usft

Wellbore	Mad River 13 State 5H		
Magnetics	Model Name IGRF2010	Sample Date 2/15/2017	Declination (°) 7.15
			Dip Angle (°) 59.94
			Field Strength (nT) 47,988

Design	20170215 Mad River 13 State 5H		
Audit Notes:			
Version:	Phase: PLAN	Tie On Depth: 0.0	
Vertical Section:	Depth From (TVD) (usft) 0.0	+N-S (usft) 0.0	Direction (°) 271.20
		+E-W (usft) 0.0	

Survey Tool Program	Date 2/15/2017		
From (usft)	To (usft)	Survey (Wellbore)	Description
0.0	14,515.0	20170215 Mad River 13 State 5H (Mad Ri	MWD - Standard
		Tool Name MWD	

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
100.0	0.00	0.00	100.0	-3,013.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
200.0	0.00	0.00	200.0	-2,913.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
300.0	0.00	0.00	300.0	-2,813.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
400.0	0.00	0.00	400.0	-2,713.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
500.0	0.00	0.00	500.0	-2,613.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
501.0	0.00	0.00	501.0	-2,612.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Rustler										
600.0	0.00	0.00	600.0	-2,513.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
700.0	0.00	0.00	700.0	-2,413.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
750.0	0.00	0.00	750.0	-2,363.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
13 3/8" Surface Casing										
781.0	0.00	0.00	781.0	-2,332.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Top of Salt										
800.0	0.00	0.00	800.0	-2,313.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
900.0	0.00	0.00	900.0	-2,213.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,000.0	0.00	0.00	1,000.0	-2,113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,100.0	0.00	0.00	1,100.0	-2,013.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,200.0	0.00	0.00	1,200.0	-1,913.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,300.0	0.00	0.00	1,300.0	-1,813.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,400.0	0.00	0.00	1,400.0	-1,713.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,500.0	0.00	0.00	1,500.0	-1,613.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,600.0	0.00	0.00	1,600.0	-1,513.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,700.0	0.00	0.00	1,700.0	-1,413.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,800.0	0.00	0.00	1,800.0	-1,313.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,900.0	0.00	0.00	1,900.0	-1,213.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,000.0	0.00	0.00	2,000.0	-1,113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,100.0	0.00	0.00	2,100.0	-1,013.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32

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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)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)
2,161.0	0.00	0.00	2,161.0	-952.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
Base of Salt										
2,200.0	0.00	0.00	2,200.0	-913.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
2,300.0	0.00	0.00	2,300.0	-813.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
2,371.0	0.00	0.00	2,371.0	-742.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
Delaware										
2,400.0	0.00	0.00	2,400.0	-713.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
2,500.0	0.00	0.00	2,500.0	-613.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
2,600.0	0.00	0.00	2,600.0	-513.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
2,700.0	0.00	0.00	2,700.0	-413.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
2,800.0	0.00	0.00	2,800.0	-313.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
2,900.0	0.00	0.00	2,900.0	-213.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,000.0	0.00	0.00	3,000.0	-113.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,091.0	0.00	0.00	3,091.0	-22.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
Cherry Canyon										
3,100.0	0.00	0.00	3,100.0	-13.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,200.0	0.00	0.00	3,200.0	87.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,300.0	0.00	0.00	3,300.0	187.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,400.0	0.00	0.00	3,400.0	287.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,500.0	0.00	0.00	3,500.0	387.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,600.0	0.00	0.00	3,600.0	487.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,700.0	0.00	0.00	3,700.0	587.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,800.0	0.00	0.00	3,800.0	687.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
3,900.0	0.00	0.00	3,900.0	787.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
4,000.0	0.00	0.00	4,000.0	887.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
4,100.0	0.00	0.00	4,100.0	987.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
4,200.0	0.00	0.00	4,200.0	1,087.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
4,300.0	0.00	0.00	4,300.0	1,187.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32

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Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
4,361.0	0.00	0.00	4,361.0	1,248.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
Brushy Canyon										
4,400.0	0.00	0.00	4,400.0	1,287.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
4,500.0	0.00	0.00	4,500.0	1,387.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
4,600.0	0.00	0.00	4,600.0	1,487.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
4,700.0	0.00	0.00	4,700.0	1,587.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
4,800.0	0.00	0.00	4,800.0	1,687.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
4,900.0	0.00	0.00	4,900.0	1,787.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,000.0	0.00	0.00	5,000.0	1,887.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,100.0	0.00	0.00	5,100.0	1,987.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,200.0	0.00	0.00	5,200.0	2,087.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,300.0	0.00	0.00	5,300.0	2,187.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,400.0	0.00	0.00	5,400.0	2,287.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,500.0	0.00	0.00	5,500.0	2,387.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,600.0	0.00	0.00	5,600.0	2,487.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,611.0	0.00	0.00	5,611.0	2,498.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
Lower Brushy Canyon										
5,700.0	0.00	0.00	5,700.0	2,587.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,800.0	0.00	0.00	5,800.0	2,687.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
5,871.0	0.00	0.00	5,871.0	2,758.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
Bone Spring/Glorietta										
5,890.0	0.00	0.00	5,890.0	2,777.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
9 5/8" Intermediate Casing										
5,900.0	0.00	0.00	5,900.0	2,787.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
6,000.0	0.00	0.00	6,000.0	2,887.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
6,100.0	0.00	0.00	6,100.0	2,987.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
6,200.0	0.00	0.00	6,200.0	3,087.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32
6,300.0	0.00	0.00	6,300.0	3,187.0	0.0	0.0	0.0	0.0	442,402.93	561,175.32

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6,400.0	0.00	0.00	6,400.0	3,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,500.0	0.00	0.00	6,500.0	3,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,600.0	0.00	0.00	6,600.0	3,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,700.0	0.00	0.00	6,700.0	3,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,800.0	0.00	0.00	6,800.0	3,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,900.0	0.00	0.00	6,900.0	3,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,921.0	0.00	0.00	6,921.0	3,808.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1st Bone Spring Sand										
7,000.0	0.00	0.00	7,000.0	3,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,100.0	0.00	0.00	7,100.0	3,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,200.0	0.00	0.00	7,200.0	4,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,300.0	0.00	0.00	7,300.0	4,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,400.0	0.00	0.00	7,400.0	4,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,500.0	0.00	0.00	7,500.0	4,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,501.0	0.00	0.00	7,501.0	4,388.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2nd Bone Spring Sand										
7,600.0	0.00	0.00	7,600.0	4,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,700.0	0.00	0.00	7,700.0	4,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,800.0	0.00	0.00	7,800.0	4,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,861.0	0.00	0.00	7,861.0	4,748.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2nd Bone Spring Lime										
7,900.0	0.00	0.00	7,900.0	4,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,000.0	0.00	0.00	8,000.0	4,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Start 1000.0 hold at 8000.0 MD										
8,100.0	0.00	0.00	8,100.0	4,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,200.0	0.00	0.00	8,200.0	5,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,261.0	0.00	0.00	8,261.0	5,148.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Harkey										

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8,300.0	0.00	0.00	8,300.0	5,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,400.0	0.00	0.00	8,400.0	5,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,500.0	0.00	0.00	8,500.0	5,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,600.0	0.00	0.00	8,600.0	5,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,700.0	0.00	0.00	8,700.0	5,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,800.0	0.00	0.00	8,800.0	5,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,831.0	0.00	0.00	8,831.0	5,718.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3rd Bone Spring Sand										
8,900.0	0.00	0.00	8,900.0	5,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,000.0	0.00	0.00	9,000.0	5,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Start 315.0 hold at 9000.0 MD										
9,100.0	0.00	0.00	9,100.0	5,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,175.0	0.00	0.00	9,175.0	6,062.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Wolfcamp										
9,200.0	0.00	0.00	9,200.0	6,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,300.0	0.00	0.00	9,300.0	6,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,315.0	0.00	0.00	9,315.0	6,202.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Start Build 9.99										
9,375.1	6.01	271.20	9,375.0	6,262.0	0.1	-3.1	3.1	9.99	442,403.00	561,172.17
Wolfcamp B										
9,400.0	8.50	271.20	9,399.7	6,286.7	0.1	-6.3	6.3	9.99	442,403.07	561,169.03
9,500.0	18.49	271.20	9,496.8	6,383.8	0.6	-29.6	29.6	9.99	442,403.55	561,145.73
9,600.0	28.48	271.20	9,588.4	6,475.4	1.5	-69.4	69.4	9.99	442,404.39	561,105.94
9,700.0	38.48	271.20	9,671.7	6,558.7	2.6	-124.5	124.5	9.99	442,405.54	561,050.85
9,800.0	48.47	271.20	9,744.2	6,631.2	4.0	-193.2	193.2	9.99	442,406.98	560,982.15
9,900.0	58.47	271.20	9,803.6	6,690.6	5.7	-273.4	273.5	9.99	442,408.66	560,901.92
10,000.0	68.46	271.20	9,848.2	6,735.2	7.6	-362.7	362.8	9.99	442,410.53	560,812.58
10,100.0	78.46	271.20	9,876.7	6,763.7	9.6	-458.5	458.6	9.99	442,412.54	560,716.86

MOJO Standard Plan

Company: Caza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference: Well Mad River 13 State 5H
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,200.0	88.45	271.20	9,888.1	6,775.1	11.7	-557.7	557.8	9.99	442,414.62	560,617.66
Start 4315.0 hold at 10200.0 MD										
10,300.0	88.45	271.20	9,890.8	6,777.8	13.8	-657.6	657.7	0.00	442,416.71	560,517.72
10,400.0	88.45	271.20	9,893.5	6,780.5	15.9	-757.5	757.7	0.00	442,418.80	560,417.78
10,500.0	88.45	271.20	9,896.2	6,783.2	18.0	-857.5	857.7	0.00	442,420.90	560,317.84
10,600.0	88.45	271.20	9,898.9	6,785.9	20.1	-957.4	957.6	0.00	442,422.99	560,217.90
10,700.0	88.45	271.20	9,901.6	6,788.6	22.1	-1,057.4	1,057.6	0.00	442,425.08	560,117.96
10,800.0	88.45	271.20	9,904.3	6,791.3	24.2	-1,157.3	1,157.6	0.00	442,427.18	560,018.01
10,900.0	88.45	271.20	9,907.0	6,794.0	26.3	-1,257.2	1,257.5	0.00	442,429.27	559,918.07
11,000.0	88.45	271.20	9,909.7	6,796.7	28.4	-1,357.2	1,357.5	0.00	442,431.36	559,818.13
11,100.0	88.45	271.20	9,912.4	6,799.4	30.5	-1,457.1	1,457.4	0.00	442,433.46	559,718.19
11,200.0	88.45	271.20	9,915.1	6,802.1	32.6	-1,557.1	1,557.4	0.00	442,435.55	559,618.25
11,300.0	88.45	271.20	9,917.8	6,804.8	34.7	-1,657.0	1,657.4	0.00	442,437.64	559,518.31
11,380.4	88.45	271.20	9,920.0	6,807.0	36.4	-1,737.3	1,737.7	0.00	442,439.33	559,437.99
Wolfcamp C										
11,400.0	88.45	271.20	9,920.5	6,807.5	36.8	-1,757.0	1,757.3	0.00	442,439.74	559,418.37
11,500.0	88.45	271.20	9,923.2	6,810.2	38.9	-1,856.9	1,857.3	0.00	442,441.83	559,318.42
11,600.0	88.45	271.20	9,925.9	6,812.9	41.0	-1,956.8	1,957.3	0.00	442,443.92	559,218.48
11,700.0	88.45	271.20	9,928.6	6,815.6	43.1	-2,056.8	2,057.2	0.00	442,446.02	559,118.54
11,800.0	88.45	271.20	9,931.4	6,818.4	45.2	-2,156.7	2,157.2	0.00	442,448.11	559,018.60
11,900.0	88.45	271.20	9,934.1	6,821.1	47.3	-2,256.7	2,257.2	0.00	442,450.20	558,918.66
12,000.0	88.45	271.20	9,936.8	6,823.8	49.4	-2,356.6	2,357.1	0.00	442,452.30	558,818.72
12,100.0	88.45	271.20	9,939.5	6,826.5	51.5	-2,456.5	2,457.1	0.00	442,454.39	558,718.78
12,200.0	88.45	271.20	9,942.2	6,829.2	53.6	-2,556.5	2,557.0	0.00	442,456.48	558,618.83
12,300.0	88.45	271.20	9,944.9	6,831.9	55.6	-2,656.4	2,657.0	0.00	442,458.58	558,518.89
12,400.0	88.45	271.20	9,947.6	6,834.6	57.7	-2,756.4	2,757.0	0.00	442,460.67	558,418.95
12,500.0	88.45	271.20	9,950.3	6,837.3	59.8	-2,856.3	2,856.9	0.00	442,462.76	558,319.01

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinates Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
12,600.0	88.45	271.20	9,953.0	6,840.0	61.9	-2,956.2	2,956.9	0.00	442,464.86	558,219.07	
12,700.0	88.45	271.20	9,955.7	6,842.7	64.0	-3,056.2	3,056.9	0.00	442,466.95	558,119.13	
12,800.0	88.45	271.20	9,958.4	6,845.4	66.1	-3,156.1	3,156.8	0.00	442,469.05	558,019.18	
12,900.0	88.45	271.20	9,961.1	6,848.1	68.2	-3,256.1	3,256.8	0.00	442,471.14	557,919.24	
13,000.0	88.45	271.20	9,963.8	6,850.8	70.3	-3,356.0	3,356.8	0.00	442,473.23	557,819.30	
13,100.0	88.45	271.20	9,966.5	6,853.5	72.4	-3,456.0	3,456.7	0.00	442,475.33	557,719.36	
13,200.0	88.45	271.20	9,969.2	6,856.2	74.5	-3,555.9	3,556.7	0.00	442,477.42	557,619.42	
13,300.0	88.45	271.20	9,971.9	6,858.9	76.6	-3,655.8	3,656.6	0.00	442,479.51	557,519.48	
13,400.0	88.45	271.20	9,974.6	6,861.6	78.7	-3,755.8	3,756.6	0.00	442,481.61	557,419.54	
13,500.0	88.45	271.20	9,977.3	6,864.3	80.8	-3,855.7	3,856.6	0.00	442,483.70	557,319.59	
13,600.0	88.45	271.20	9,980.0	6,867.0	82.9	-3,955.7	3,956.5	0.00	442,485.79	557,219.65	
13,700.0	88.45	271.20	9,982.7	6,869.7	85.0	-4,055.6	4,056.5	0.00	442,487.89	557,119.71	
13,800.0	88.45	271.20	9,985.4	6,872.4	87.0	-4,155.5	4,156.5	0.00	442,489.98	557,019.77	
13,900.0	88.45	271.20	9,988.2	6,875.2	89.1	-4,255.5	4,256.4	0.00	442,492.07	556,919.83	
14,000.0	88.45	271.20	9,990.9	6,877.9	91.2	-4,355.4	4,356.4	0.00	442,494.17	556,819.89	
14,100.0	88.45	271.20	9,993.6	6,880.6	93.3	-4,455.4	4,456.3	0.00	442,496.26	556,719.95	
14,200.0	88.45	271.20	9,996.3	6,883.3	95.4	-4,555.3	4,556.3	0.00	442,498.35	556,620.00	
14,300.0	88.45	271.20	9,999.0	6,886.0	97.5	-4,655.3	4,656.3	0.00	442,500.45	556,520.06	
14,400.0	88.45	271.20	10,001.7	6,888.7	99.6	-4,755.2	4,756.2	0.00	442,502.54	556,420.12	
14,500.0	88.45	271.20	10,004.4	6,891.4	101.7	-4,855.1	4,856.2	0.00	442,504.63	556,320.18	
14,515.0	88.45	271.20	10,004.8	6,891.8	102.0	-4,870.1	4,871.2	0.00	442,504.95	556,305.19	
TD at 14515.0 - 5 1/2" Production Casing											

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Casing Points			
Measured Depth (usft)	Vertical Depth (usft)	Name	
14,515.0	10,004.8	5 1/2" Production Casing	Casing Diameter (")
750.0	750.0	13 3/8" Surface Casing	Hole Diameter (")
5,890.0	5,890.0	9 5/8" Intermediate Casing	

Formations			
Measured Depth (usft)	Vertical Depth (usft)	Name	
6,921.0	6,921.0	1st Bone Spring Sand	Dip Direction (°)
8,261.0	8,261.0	Harkey	
2,371.0	2,371.0	Delaware	
9,175.0	9,175.0	Wolfcamp	
3,091.0	3,091.0	Cherry Canyon	
5,611.0	5,611.0	Lower Brushy Canyon	
7,861.0	7,861.0	2nd Bone Spring Lime	
501.0	501.0	Rustler	
781.0	781.0	Top of Salt	
4,361.0	4,361.0	Brushy Canyon	
11,380.4	9,920.0	Wolfcamp C	
5,871.0	5,871.0	Bone Spring/ Glorietta	
9,375.1	9,375.0	Wolfcamp B	
8,831.0	8,831.0	3rd Bone Spring Sand	
7,501.0	7,501.0	2nd Bone Spring Sand	
2,161.0	2,161.0	Base of Salt	

MOJO Standard Plan

Company:	Caiza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		
		+N/-S (usft)	+E/-W (usft)	Comment
8,000.0	8,000.0	0.0	0.0	Start 1000.0 hold at 8000.0 MD
9,000.0	9,000.0	0.0	0.0	Start 315.0 hold at 9000.0 MD
9,315.0	9,315.0	0.0	0.0	Start Build 9.99
10,200.0	9,888.1	11.7	-557.7	Start 4315.0 hold at 10200.0 MD
14,515.0	10,004.8	102.0	-4,870.1	TD at 14515.0

Checked By: _____

Approved By: _____

Date: _____

Caza Oil and Gas

Black River

Mad River 13 State 5H

Mad River 13 State 5H

Mad River 13 State 5H

Plan: 20170215 Mad River 13 State 5H

MOJO Standard Plan

15 February, 2017

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Project	Black River	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Mad River 13 State 5H		
Site Position:			
From:	Lat/Long	Northing:	442,402.93 usft
Position Uncertainty:	1.0 usft	Easting:	561,175.32 usft
		Slot Radius:	17-1/2 "
		Latitude:	32° 12' 58.061 N
		Longitude:	104° 8' 7.890 W
		Grid Convergence:	0.11 °

Well	Mad River 13 State 5H		
Well Position			
+N/-S	0.0 usft	Northing:	442,402.93 usft
+E/-W	0.0 usft	Easting:	561,175.32 usft
Position Uncertainty	1.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 12' 58.061 N
		Longitude:	104° 8' 7.890 W
		Ground Level:	3,091.0 usft

Wellbore	Mad River 13 State 5H		
Magnetics			
Model Name	IGRF2010	Sample Date	2/15/2017
		Declination (°)	7.15
		Dip Angle (°)	59.94
		Field Strength (nT)	47.988

Design	20170215 Mad River 13 State 5H		
Audit Notes:			
Version:		Phase:	PLAN
		Tie On Depth:	0.0
Vertical Section:		Depth From (TVD) (usft)	
		+N/-S (usft)	0.0
		+E/-W (usft)	0.0
		Direction (°)	271.20

Survey Tool Program	Date	2/15/2017	
From (usft)	To (usft)	Survey (Wellbore)	Description
0.0	14,515.0	20170215 Mad River 13 State 5H (Mad Ri	MWD - Standard
		Tool Name	MWD

MOJO Standard Plan

Company: Caiza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference: Well Mad River 13 State 5H
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (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)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
100.0	0.00	0.00	100.0	-3,013.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
200.0	0.00	0.00	200.0	-2,913.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
300.0	0.00	0.00	300.0	-2,813.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
400.0	0.00	0.00	400.0	-2,713.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
500.0	0.00	0.00	500.0	-2,613.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
501.0	0.00	0.00	501.0	-2,612.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Rustler										
600.0	0.00	0.00	600.0	-2,513.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
700.0	0.00	0.00	700.0	-2,413.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
750.0	0.00	0.00	750.0	-2,363.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
13 3/8" Surface Casing										
781.0	0.00	0.00	781.0	-2,332.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Top of Salt										
800.0	0.00	0.00	800.0	-2,313.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
900.0	0.00	0.00	900.0	-2,213.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,000.0	0.00	0.00	1,000.0	-2,113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,100.0	0.00	0.00	1,100.0	-2,013.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,200.0	0.00	0.00	1,200.0	-1,913.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,300.0	0.00	0.00	1,300.0	-1,813.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,400.0	0.00	0.00	1,400.0	-1,713.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,500.0	0.00	0.00	1,500.0	-1,613.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,600.0	0.00	0.00	1,600.0	-1,513.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,700.0	0.00	0.00	1,700.0	-1,413.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,800.0	0.00	0.00	1,800.0	-1,313.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,900.0	0.00	0.00	1,900.0	-1,213.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,000.0	0.00	0.00	2,000.0	-1,113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,100.0	0.00	0.00	2,100.0	-1,013.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32

MOJO Standard Plan

Company: Caaza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference:
TVD Reference: Well Mad River 13 State 5H
MD Reference: WELL @ 3113.0usft (Original Well Elev)
North Reference: WELL @ 3113.0usft (Original Well Elev)
Survey Calculation Method: Grid
Database: Minimum Curvature
 EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,161.0	0.00	0.00	2,161.0	-952.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Base of Salt										
2,200.0	0.00	0.00	2,200.0	-913.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,300.0	0.00	0.00	2,300.0	-813.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,371.0	0.00	0.00	2,371.0	-742.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Delaware										
2,400.0	0.00	0.00	2,400.0	-713.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,500.0	0.00	0.00	2,500.0	-613.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,600.0	0.00	0.00	2,600.0	-513.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,700.0	0.00	0.00	2,700.0	-413.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,800.0	0.00	0.00	2,800.0	-313.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,900.0	0.00	0.00	2,900.0	-213.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,000.0	0.00	0.00	3,000.0	-113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,091.0	0.00	0.00	3,091.0	-22.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Cherry Canyon										
3,100.0	0.00	0.00	3,100.0	-13.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,200.0	0.00	0.00	3,200.0	87.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,300.0	0.00	0.00	3,300.0	187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,400.0	0.00	0.00	3,400.0	287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,500.0	0.00	0.00	3,500.0	387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,600.0	0.00	0.00	3,600.0	487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,700.0	0.00	0.00	3,700.0	587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,800.0	0.00	0.00	3,800.0	687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,900.0	0.00	0.00	3,900.0	787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,000.0	0.00	0.00	4,000.0	887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,100.0	0.00	0.00	4,100.0	987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,200.0	0.00	0.00	4,200.0	1,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,300.0	0.00	0.00	4,300.0	1,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32

MOJO Standard Plan

Company: Caiza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference: Well Mad River 13 State 5H
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (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)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
4,361.0	0.00	0.00	4,361.0	1,248.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Brushy Canyon										
4,400.0	0.00	0.00	4,400.0	1,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,500.0	0.00	0.00	4,500.0	1,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,600.0	0.00	0.00	4,600.0	1,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,700.0	0.00	0.00	4,700.0	1,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,800.0	0.00	0.00	4,800.0	1,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,900.0	0.00	0.00	4,900.0	1,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,000.0	0.00	0.00	5,000.0	1,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,100.0	0.00	0.00	5,100.0	1,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,200.0	0.00	0.00	5,200.0	2,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,300.0	0.00	0.00	5,300.0	2,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,400.0	0.00	0.00	5,400.0	2,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,500.0	0.00	0.00	5,500.0	2,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,600.0	0.00	0.00	5,600.0	2,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,611.0	0.00	0.00	5,611.0	2,498.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Lower Brushy Canyon										
5,700.0	0.00	0.00	5,700.0	2,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,800.0	0.00	0.00	5,800.0	2,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,871.0	0.00	0.00	5,871.0	2,758.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Bone Spring/ Giorietta										
5,890.0	0.00	0.00	5,890.0	2,777.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9 5/8" Intermediate Casing										
5,900.0	0.00	0.00	5,900.0	2,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,000.0	0.00	0.00	6,000.0	2,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,100.0	0.00	0.00	6,100.0	2,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,200.0	0.00	0.00	6,200.0	3,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,300.0	0.00	0.00	6,300.0	3,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32

MOJO Standard Plan

Company: Caza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference: Well Mad River 13 State 5H
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (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)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
6,400.0	0.00	0.00	6,400.0	3,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,500.0	0.00	0.00	6,500.0	3,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,600.0	0.00	0.00	6,600.0	3,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,700.0	0.00	0.00	6,700.0	3,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,800.0	0.00	0.00	6,800.0	3,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,900.0	0.00	0.00	6,900.0	3,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,921.0	0.00	0.00	6,921.0	3,808.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1st Bone Spring Sand										
7,000.0	0.00	0.00	7,000.0	3,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,100.0	0.00	0.00	7,100.0	3,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,200.0	0.00	0.00	7,200.0	4,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,300.0	0.00	0.00	7,300.0	4,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,400.0	0.00	0.00	7,400.0	4,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,500.0	0.00	0.00	7,500.0	4,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,501.0	0.00	0.00	7,501.0	4,388.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2nd Bone Spring Sand										
7,600.0	0.00	0.00	7,600.0	4,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,700.0	0.00	0.00	7,700.0	4,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,800.0	0.00	0.00	7,800.0	4,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,861.0	0.00	0.00	7,861.0	4,748.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2nd Bone Spring Lime										
7,900.0	0.00	0.00	7,900.0	4,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,000.0	0.00	0.00	8,000.0	4,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Start 1000.0 hold at 8000.0 MD										
8,100.0	0.00	0.00	8,100.0	4,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,200.0	0.00	0.00	8,200.0	5,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,261.0	0.00	0.00	8,261.0	5,148.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Harkey										

MOJO Standard Plan

Company: Caza Oil and Gas
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Local Co-ordinate Reference: Well Mad River 13 State 5H
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Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,300.0	0.00	0.00	8,300.0	5,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,400.0	0.00	0.00	8,400.0	5,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,500.0	0.00	0.00	8,500.0	5,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,600.0	0.00	0.00	8,600.0	5,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,700.0	0.00	0.00	8,700.0	5,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,800.0	0.00	0.00	8,800.0	5,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,831.0	0.00	0.00	8,831.0	5,718.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3rd Bone Spring Sand										
8,900.0	0.00	0.00	8,900.0	5,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,000.0	0.00	0.00	9,000.0	5,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Start 315.0 hold at 9000.0 MD										
9,100.0	0.00	0.00	9,100.0	5,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,175.0	0.00	0.00	9,175.0	6,062.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Wolfcamp										
9,200.0	0.00	0.00	9,200.0	6,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,300.0	0.00	0.00	9,300.0	6,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,315.0	0.00	0.00	9,315.0	6,202.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Start Build 9.99										
9,375.1	6.01	271.20	9,375.0	6,262.0	0.1	-3.1	3.1	9.99	442,403.00	561,172.17
Wolfcamp B										
9,400.0	8.50	271.20	9,399.7	6,286.7	0.1	-6.3	6.3	9.99	442,403.07	561,169.03
9,500.0	18.49	271.20	9,496.8	6,383.8	0.6	-29.6	29.6	9.99	442,403.55	561,145.73
9,600.0	28.48	271.20	9,588.4	6,475.4	1.5	-69.4	69.4	9.99	442,404.39	561,105.94
9,700.0	38.48	271.20	9,671.7	6,558.7	2.6	-124.5	124.5	9.99	442,405.54	561,050.85
9,800.0	48.47	271.20	9,744.2	6,631.2	4.0	-193.2	193.2	9.99	442,406.98	560,982.15
9,900.0	58.47	271.20	9,803.6	6,690.6	5.7	-273.4	273.5	9.99	442,408.66	560,901.92
10,000.0	68.46	271.20	9,848.2	6,735.2	7.6	-362.7	362.8	9.99	442,410.53	560,812.58
10,100.0	78.46	271.20	9,876.7	6,763.7	9.6	-458.5	458.6	9.99	442,412.54	560,716.86

MOJO Standard Plan

Company: Caza Oil and Gas
Project: Black River
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Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
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Local Co-ordinate Reference: Well Mad River 13 State 5H
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Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,200.0	88.45	271.20	9,888.1	6,775.1	11.7	-557.7	557.8	9.99	442,414.62	560,617.66
Start 4315.0 hold at 10200.0 MD										
10,300.0	88.45	271.20	9,890.8	6,777.8	13.8	-657.6	657.7	0.00	442,416.71	560,517.72
10,400.0	88.45	271.20	9,893.5	6,780.5	15.9	-757.5	757.7	0.00	442,418.80	560,417.78
10,500.0	88.45	271.20	9,896.2	6,783.2	18.0	-857.5	857.7	0.00	442,420.90	560,317.84
10,600.0	88.45	271.20	9,898.9	6,785.9	20.1	-957.4	957.6	0.00	442,422.99	560,217.90
10,700.0	88.45	271.20	9,901.6	6,788.6	22.1	-1,057.4	1,057.6	0.00	442,425.08	560,117.96
10,800.0	88.45	271.20	9,904.3	6,791.3	24.2	-1,157.3	1,157.6	0.00	442,427.18	560,018.01
10,900.0	88.45	271.20	9,907.0	6,794.0	26.3	-1,257.2	1,257.5	0.00	442,429.27	559,918.07
11,000.0	88.45	271.20	9,909.7	6,796.7	28.4	-1,357.2	1,357.5	0.00	442,431.36	559,818.13
11,100.0	88.45	271.20	9,912.4	6,799.4	30.5	-1,457.1	1,457.4	0.00	442,433.46	559,718.19
11,200.0	88.45	271.20	9,915.1	6,802.1	32.6	-1,557.1	1,557.4	0.00	442,435.55	559,618.25
11,300.0	88.45	271.20	9,917.8	6,804.8	34.7	-1,657.0	1,657.4	0.00	442,437.64	559,518.31
11,380.4	88.45	271.20	9,920.0	6,807.0	36.4	-1,737.3	1,737.7	0.00	442,439.33	559,437.99
Wolfcamp C										
11,400.0	88.45	271.20	9,920.5	6,807.5	36.8	-1,757.0	1,757.3	0.00	442,439.74	559,418.37
11,500.0	88.45	271.20	9,923.2	6,810.2	38.9	-1,856.9	1,857.3	0.00	442,441.83	559,318.42
11,600.0	88.45	271.20	9,925.9	6,812.9	41.0	-1,956.8	1,957.3	0.00	442,443.92	559,218.48
11,700.0	88.45	271.20	9,928.6	6,815.6	43.1	-2,056.8	2,057.2	0.00	442,446.02	559,118.54
11,800.0	88.45	271.20	9,931.4	6,818.4	45.2	-2,156.7	2,157.2	0.00	442,448.11	559,018.60
11,900.0	88.45	271.20	9,934.1	6,821.1	47.3	-2,256.7	2,257.2	0.00	442,450.20	558,918.66
12,000.0	88.45	271.20	9,936.8	6,823.8	49.4	-2,356.6	2,357.1	0.00	442,452.30	558,818.72
12,100.0	88.45	271.20	9,939.5	6,826.5	51.5	-2,456.5	2,457.1	0.00	442,454.39	558,718.78
12,200.0	88.45	271.20	9,942.2	6,829.2	53.6	-2,556.5	2,557.0	0.00	442,456.48	558,618.83
12,300.0	88.45	271.20	9,944.9	6,831.9	55.6	-2,656.4	2,657.0	0.00	442,458.58	558,518.89
12,400.0	88.45	271.20	9,947.6	6,834.6	57.7	-2,756.4	2,757.0	0.00	442,460.67	558,418.95
12,500.0	88.45	271.20	9,950.3	6,837.3	59.8	-2,856.3	2,856.9	0.00	442,462.76	558,319.01

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
12,600.0	88.45	271.20	9,953.0	6,840.0	61.9	-2,956.2	2,956.9	0.00	442,464.86	558,219.07
12,700.0	88.45	271.20	9,955.7	6,842.7	64.0	-3,056.2	3,056.9	0.00	442,466.95	558,119.13
12,800.0	88.45	271.20	9,958.4	6,845.4	66.1	-3,156.1	3,156.8	0.00	442,469.05	558,019.18
12,900.0	88.45	271.20	9,961.1	6,848.1	68.2	-3,256.1	3,256.8	0.00	442,471.14	557,919.24
13,000.0	88.45	271.20	9,963.8	6,850.8	70.3	-3,356.0	3,356.8	0.00	442,473.23	557,819.30
13,100.0	88.45	271.20	9,966.5	6,853.5	72.4	-3,456.0	3,456.7	0.00	442,475.33	557,719.36
13,200.0	88.45	271.20	9,969.2	6,856.2	74.5	-3,555.9	3,556.7	0.00	442,477.42	557,619.42
13,300.0	88.45	271.20	9,971.9	6,858.9	76.6	-3,655.8	3,656.6	0.00	442,479.51	557,519.48
13,400.0	88.45	271.20	9,974.6	6,861.6	78.7	-3,755.8	3,756.6	0.00	442,481.61	557,419.54
13,500.0	88.45	271.20	9,977.3	6,864.3	80.8	-3,855.7	3,856.6	0.00	442,483.70	557,319.59
13,600.0	88.45	271.20	9,980.0	6,867.0	82.9	-3,955.7	3,956.5	0.00	442,485.79	557,219.65
13,700.0	88.45	271.20	9,982.7	6,869.7	85.0	-4,055.6	4,056.5	0.00	442,487.89	557,119.71
13,800.0	88.45	271.20	9,985.4	6,872.4	87.0	-4,155.5	4,156.5	0.00	442,489.98	557,019.77
13,900.0	88.45	271.20	9,988.2	6,875.2	89.1	-4,255.5	4,256.4	0.00	442,492.07	556,919.83
14,000.0	88.45	271.20	9,990.9	6,877.9	91.2	-4,355.4	4,356.4	0.00	442,494.17	556,819.89
14,100.0	88.45	271.20	9,993.6	6,880.6	93.3	-4,455.4	4,456.3	0.00	442,496.26	556,719.95
14,200.0	88.45	271.20	9,996.3	6,883.3	95.4	-4,555.3	4,556.3	0.00	442,498.35	556,620.00
14,300.0	88.45	271.20	9,999.0	6,886.0	97.5	-4,655.3	4,656.3	0.00	442,500.45	556,520.06
14,400.0	88.45	271.20	10,001.7	6,888.7	99.6	-4,755.2	4,756.2	0.00	442,502.54	556,420.12
14,500.0	88.45	271.20	10,004.4	6,891.4	101.7	-4,855.1	4,856.2	0.00	442,504.63	556,320.18
14,515.0	88.45	271.20	10,004.8	6,891.8	102.0	-4,870.1	4,871.2	0.00	442,504.95	556,305.19

TD at 14515.0 - 5 1/2" Production Casing

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Destan:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Casing Points						
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")		
14,515.0	10,004.8	5 1/2" Production Casing	5-1/2	8-3/4		
750.0	750.0	13 3/8" Surface Casing	13-3/8	17-1/2		
5,890.0	5,890.0	9 5/8" Intermediate Casing	9-5/8	12-1/4		
Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (")	Dip Direction (")	
6,921.0	6,921.0	1st Bone Spring Sand		0.00		
8,261.0	8,261.0	Harkey		0.00		
2,371.0	2,371.0	Delaware		0.00		
9,175.0	9,175.0	Wolfcamp		0.00		
3,091.0	3,091.0	Cherry Canyon		0.00		
5,611.0	5,611.0	Lower Brushy Canyon		0.00		
7,861.0	7,861.0	2nd Bone Spring Lime		0.00		
501.0	501.0	Rustler		0.00		
781.0	781.0	Top of Salt		0.00		
4,361.0	4,361.0	Brushy Canyon		0.00		
11,380.4	9,920.0	Wolfcamp C		0.00		
5,871.0	5,871.0	Bone Spring/ Glorieta		0.00		
9,375.1	9,375.0	Wolfcamp B		0.00		
8,831.0	8,831.0	3rd Bone Spring Sand		0.00		
7,501.0	7,501.0	2nd Bone Spring Sand		0.00		
2,161.0	2,161.0	Base of Salt		0.00		

MOJO Standard Plan

Company:	Caiza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		
		+N/-S (usft)	+E/-W (usft)	Comment
8,000.0	8,000.0	0.0	0.0	Start 1000.0 hold at 8000.0 MD
9,000.0	9,000.0	0.0	0.0	Start 315.0 hold at 9000.0 MD
9,315.0	9,315.0	0.0	0.0	Start Build 9.99
10,200.0	9,888.1	11.7	-557.7	Start 4315.0 hold at 10200.0 MD
14,515.0	10,004.8	102.0	-4,870.1	TD at 14515.0

Checked By: _____

Approved By: _____

Date: _____

Caza Oil and Gas

Black River

Mad River 13 State 5H

Mad River 13 State 5H

Mad River 13 State 5H

Plan: 20170215 Mad River 13 State 5H

MOJO Standard Plan

15 February, 2017

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Project	Black River	System Datum:	Mean Sea Level
Map System:	US State Plane 1927 (Exact solution)		
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Mad River 13 State 5H				
Site Position:		Northing:	442,402.93 usft	Latitude:	32° 12' 58.061 N
From:	Lat/Long	Easting:	561,175.32 usft	Longitude:	104° 8' 7.890 W
Position Uncertainty:	1.0 usft	Slot Radius:	17-1/2 "	Grid Convergence:	0.11 °

Well	Mad River 13 State 5H				
Well Position	+N/-S +E/-W	Northing: Easting:	442,402.93 usft 561,175.32 usft	Latitude: Longitude:	32° 12' 58.061 N 104° 8' 7.890 W
Position Uncertainty	1.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,091.0 usft

Wellbore	Mad River 13 State 5H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/15/2017	7.15	59.94	47,988

Design	20170215 Mad River 13 State 5H				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	271.20	

Survey Tool Program	Date	2/15/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	14,515.0	20170215 Mad River 13 State 5H (Mad Ri	MWD	MWD - Standard	

MOJO Standard Plan

Company: Caaza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference: Well Mad River 13 State 5H
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (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)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
100.0	0.00	0.00	100.0	-3,013.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
200.0	0.00	0.00	200.0	-2,913.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
300.0	0.00	0.00	300.0	-2,813.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
400.0	0.00	0.00	400.0	-2,713.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
500.0	0.00	0.00	500.0	-2,613.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
501.0	0.00	0.00	501.0	-2,612.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Rustler										
600.0	0.00	0.00	600.0	-2,513.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
700.0	0.00	0.00	700.0	-2,413.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
750.0	0.00	0.00	750.0	-2,383.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
13 3/8" Surface Casing										
781.0	0.00	0.00	781.0	-2,332.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Top of Salt										
800.0	0.00	0.00	800.0	-2,313.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
900.0	0.00	0.00	900.0	-2,213.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,000.0	0.00	0.00	1,000.0	-2,113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,100.0	0.00	0.00	1,100.0	-2,013.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,200.0	0.00	0.00	1,200.0	-1,913.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,300.0	0.00	0.00	1,300.0	-1,813.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,400.0	0.00	0.00	1,400.0	-1,713.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,500.0	0.00	0.00	1,500.0	-1,613.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,600.0	0.00	0.00	1,600.0	-1,513.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,700.0	0.00	0.00	1,700.0	-1,413.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,800.0	0.00	0.00	1,800.0	-1,313.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1,900.0	0.00	0.00	1,900.0	-1,213.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,000.0	0.00	0.00	2,000.0	-1,113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,100.0	0.00	0.00	2,100.0	-1,013.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32

MOJO Standard Plan

Company: Caza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference: Well Mad River 13 State 5H
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (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)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,161.0	0.00	0.00	2,161.0	-952.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Base of Salt										
2,200.0	0.00	0.00	2,200.0	-913.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,300.0	0.00	0.00	2,300.0	-813.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,371.0	0.00	0.00	2,371.0	-742.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Delaware										
2,400.0	0.00	0.00	2,400.0	-713.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,500.0	0.00	0.00	2,500.0	-613.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,600.0	0.00	0.00	2,600.0	-513.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,700.0	0.00	0.00	2,700.0	-413.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,800.0	0.00	0.00	2,800.0	-313.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2,900.0	0.00	0.00	2,900.0	-213.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,000.0	0.00	0.00	3,000.0	-113.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,091.0	0.00	0.00	3,091.0	-22.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Cherry Canyon										
3,100.0	0.00	0.00	3,100.0	-13.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,200.0	0.00	0.00	3,200.0	87.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,300.0	0.00	0.00	3,300.0	187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,400.0	0.00	0.00	3,400.0	287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,500.0	0.00	0.00	3,500.0	387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,600.0	0.00	0.00	3,600.0	487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,700.0	0.00	0.00	3,700.0	587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,800.0	0.00	0.00	3,800.0	687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3,900.0	0.00	0.00	3,900.0	787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,000.0	0.00	0.00	4,000.0	887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,100.0	0.00	0.00	4,100.0	987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,200.0	0.00	0.00	4,200.0	1,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,300.0	0.00	0.00	4,300.0	1,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32

MOJO Standard Plan

Company: Caza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference:
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Well Mad River 13 State 5H
WELL @ 3113.0usft (Original Well Elev)
WELL @ 3113.0usft (Original Well Elev)
Grid
Minimum Curvature
EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
4,361.0	0.00	0.00	4,361.0	1,248.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Brushy Canyon										
4,400.0	0.00	0.00	4,400.0	1,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,500.0	0.00	0.00	4,500.0	1,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,600.0	0.00	0.00	4,600.0	1,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,700.0	0.00	0.00	4,700.0	1,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,800.0	0.00	0.00	4,800.0	1,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
4,900.0	0.00	0.00	4,900.0	1,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,000.0	0.00	0.00	5,000.0	1,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,100.0	0.00	0.00	5,100.0	1,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,200.0	0.00	0.00	5,200.0	2,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,300.0	0.00	0.00	5,300.0	2,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,400.0	0.00	0.00	5,400.0	2,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,500.0	0.00	0.00	5,500.0	2,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,600.0	0.00	0.00	5,600.0	2,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,611.0	0.00	0.00	5,611.0	2,498.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Lower Brushy Canyon										
5,700.0	0.00	0.00	5,700.0	2,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,800.0	0.00	0.00	5,800.0	2,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
5,871.0	0.00	0.00	5,871.0	2,758.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Bone Spring/ Glorietta										
5,890.0	0.00	0.00	5,890.0	2,777.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9 5/8" Intermediate Casing										
5,900.0	0.00	0.00	5,900.0	2,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,000.0	0.00	0.00	6,000.0	2,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,100.0	0.00	0.00	6,100.0	2,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,200.0	0.00	0.00	6,200.0	3,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,300.0	0.00	0.00	6,300.0	3,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
6,400.0	0.00	0.00	6,400.0	3,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,500.0	0.00	0.00	6,500.0	3,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,600.0	0.00	0.00	6,600.0	3,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,700.0	0.00	0.00	6,700.0	3,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,800.0	0.00	0.00	6,800.0	3,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,900.0	0.00	0.00	6,900.0	3,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
6,921.0	0.00	0.00	6,921.0	3,808.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
1st Bone Spring Sand										
7,000.0	0.00	0.00	7,000.0	3,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,100.0	0.00	0.00	7,100.0	3,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,200.0	0.00	0.00	7,200.0	4,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,300.0	0.00	0.00	7,300.0	4,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,400.0	0.00	0.00	7,400.0	4,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,500.0	0.00	0.00	7,500.0	4,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,501.0	0.00	0.00	7,501.0	4,388.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2nd Bone Spring Sand										
7,600.0	0.00	0.00	7,600.0	4,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,700.0	0.00	0.00	7,700.0	4,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,800.0	0.00	0.00	7,800.0	4,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
7,861.0	0.00	0.00	7,861.0	4,748.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
2nd Bone Spring Lime										
7,900.0	0.00	0.00	7,900.0	4,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,000.0	0.00	0.00	8,000.0	4,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Start 1000.0 hold at 8000.0 MD										
8,100.0	0.00	0.00	8,100.0	4,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,200.0	0.00	0.00	8,200.0	5,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,261.0	0.00	0.00	8,261.0	5,148.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Harkey										

MOJO Standard Plan

Company: Caza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference: Well Mad River 13 State 5H
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (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)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,300.0	0.00	0.00	8,300.0	5,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,400.0	0.00	0.00	8,400.0	5,287.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,500.0	0.00	0.00	8,500.0	5,387.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,600.0	0.00	0.00	8,600.0	5,487.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,700.0	0.00	0.00	8,700.0	5,587.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,800.0	0.00	0.00	8,800.0	5,687.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
8,831.0	0.00	0.00	8,831.0	5,718.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
3rd Bone Spring Sand										
8,900.0	0.00	0.00	8,900.0	5,787.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,000.0	0.00	0.00	9,000.0	5,887.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Start 315.0 hold at 9000.0 MD										
9,100.0	0.00	0.00	9,100.0	5,987.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,175.0	0.00	0.00	9,175.0	6,062.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Wolfcamp										
9,200.0	0.00	0.00	9,200.0	6,087.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,300.0	0.00	0.00	9,300.0	6,187.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
9,315.0	0.00	0.00	9,315.0	6,202.0	0.0	0.0	0.0	0.00	442,402.93	561,175.32
Start Build 9.99										
9,375.1	6.01	271.20	9,375.0	6,262.0	0.1	-3.1	3.1	9.99	442,403.00	561,172.17
Wolfcamp B										
9,400.0	8.50	271.20	9,399.7	6,286.7	0.1	-6.3	6.3	9.99	442,403.07	561,169.03
9,500.0	18.49	271.20	9,496.8	6,383.8	0.6	-29.6	29.6	9.99	442,403.55	561,145.73
9,600.0	28.48	271.20	9,588.4	6,475.4	1.5	-69.4	69.4	9.99	442,404.39	561,105.94
9,700.0	38.48	271.20	9,671.7	6,558.7	2.6	-124.5	124.5	9.99	442,405.54	561,050.85
9,800.0	48.47	271.20	9,744.2	6,631.2	4.0	-193.2	193.2	9.99	442,406.98	560,982.15
9,900.0	58.47	271.20	9,803.6	6,690.6	5.7	-273.4	273.5	9.99	442,408.66	560,901.92
10,000.0	68.46	271.20	9,848.2	6,735.2	7.6	-362.7	362.8	9.99	442,410.53	560,812.58
10,100.0	78.46	271.20	9,876.7	6,763.7	9.6	-458.5	458.6	9.99	442,412.54	560,716.86

MOJO Standard Plan

Company: Caza Oil and Gas
Project: Black River
Site: Mad River 13 State 5H
Well: Mad River 13 State 5H
Wellbore: Mad River 13 State 5H
Design: 20170215 Mad River 13 State 5H

Local Co-ordinate Reference: Well Mad River 13 State 5H
TVD Reference: WELL @ 3113.0usft (Original Well Elev)
MD Reference: WELL @ 3113.0usft (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)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,200.0	88.45	271.20	9,888.1	6,775.1	11.7	-557.7	557.8	9.99	442,414.62	560,617.66
Start 4315.0 hold at 10200.0 MD										
10,300.0	88.45	271.20	9,890.8	6,777.8	13.8	-657.6	657.7	0.00	442,416.71	560,517.72
10,400.0	88.45	271.20	9,893.5	6,780.5	15.9	-757.5	757.7	0.00	442,418.80	560,417.78
10,500.0	88.45	271.20	9,896.2	6,783.2	18.0	-857.5	857.7	0.00	442,420.90	560,317.84
10,600.0	88.45	271.20	9,898.9	6,785.9	20.1	-957.4	957.6	0.00	442,422.99	560,217.90
10,700.0	88.45	271.20	9,901.6	6,788.6	22.1	-1,057.4	1,057.6	0.00	442,425.08	560,117.96
10,800.0	88.45	271.20	9,904.3	6,791.3	24.2	-1,157.3	1,157.6	0.00	442,427.18	560,018.01
10,900.0	88.45	271.20	9,907.0	6,794.0	26.3	-1,257.2	1,257.5	0.00	442,429.27	559,918.07
11,000.0	88.45	271.20	9,909.7	6,796.7	28.4	-1,357.2	1,357.5	0.00	442,431.36	559,818.13
11,100.0	88.45	271.20	9,912.4	6,799.4	30.5	-1,457.1	1,457.4	0.00	442,433.46	559,718.19
11,200.0	88.45	271.20	9,915.1	6,802.1	32.6	-1,557.1	1,557.4	0.00	442,435.55	559,618.25
11,300.0	88.45	271.20	9,917.8	6,804.8	34.7	-1,657.0	1,657.4	0.00	442,437.64	559,518.31
11,380.4	88.45	271.20	9,920.0	6,807.0	36.4	-1,737.3	1,737.7	0.00	442,439.33	559,437.99
Wolfcamp C										
11,400.0	88.45	271.20	9,920.5	6,807.5	36.8	-1,757.0	1,757.3	0.00	442,439.74	559,418.37
11,500.0	88.45	271.20	9,923.2	6,810.2	38.9	-1,856.9	1,857.3	0.00	442,441.83	559,318.42
11,600.0	88.45	271.20	9,925.9	6,812.9	41.0	-1,956.8	1,957.3	0.00	442,443.92	559,218.48
11,700.0	88.45	271.20	9,928.6	6,815.6	43.1	-2,056.8	2,057.2	0.00	442,446.02	559,118.54
11,800.0	88.45	271.20	9,931.4	6,818.4	45.2	-2,156.7	2,157.2	0.00	442,448.11	559,018.60
11,900.0	88.45	271.20	9,934.1	6,821.1	47.3	-2,256.7	2,257.2	0.00	442,450.20	558,918.66
12,000.0	88.45	271.20	9,936.8	6,823.8	49.4	-2,356.6	2,357.1	0.00	442,452.30	558,818.72
12,100.0	88.45	271.20	9,939.5	6,826.5	51.5	-2,456.5	2,457.1	0.00	442,454.39	558,718.78
12,200.0	88.45	271.20	9,942.2	6,829.2	53.6	-2,556.5	2,557.0	0.00	442,456.48	558,618.83
12,300.0	88.45	271.20	9,944.9	6,831.9	55.6	-2,656.4	2,657.0	0.00	442,458.58	558,518.89
12,400.0	88.45	271.20	9,947.6	6,834.6	57.7	-2,756.4	2,757.0	0.00	442,460.67	558,418.95
12,500.0	88.45	271.20	9,950.3	6,837.3	59.8	-2,856.3	2,856.9	0.00	442,462.76	558,319.01

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
12,600.0	88.45	271.20	9,953.0	6,840.0	61.9	-2,956.2	2,956.9	0.00	442,464.86	558,219.07
12,700.0	88.45	271.20	9,955.7	6,842.7	64.0	-3,056.2	3,056.9	0.00	442,466.95	558,119.13
12,800.0	88.45	271.20	9,958.4	6,845.4	66.1	-3,156.1	3,156.8	0.00	442,469.05	558,019.18
12,900.0	88.45	271.20	9,961.1	6,848.1	68.2	-3,256.1	3,256.8	0.00	442,471.14	557,919.24
13,000.0	88.45	271.20	9,963.8	6,850.8	70.3	-3,356.0	3,356.8	0.00	442,473.23	557,819.30
13,100.0	88.45	271.20	9,966.5	6,853.5	72.4	-3,456.0	3,456.7	0.00	442,475.33	557,719.36
13,200.0	88.45	271.20	9,969.2	6,856.2	74.5	-3,555.9	3,556.7	0.00	442,477.42	557,619.42
13,300.0	88.45	271.20	9,971.9	6,858.9	76.6	-3,655.8	3,656.6	0.00	442,479.51	557,519.48
13,400.0	88.45	271.20	9,974.6	6,861.6	78.7	-3,755.8	3,756.6	0.00	442,481.61	557,419.54
13,500.0	88.45	271.20	9,977.3	6,864.3	80.8	-3,855.7	3,856.6	0.00	442,483.70	557,319.59
13,600.0	88.45	271.20	9,980.0	6,867.0	82.9	-3,955.7	3,956.5	0.00	442,485.79	557,219.65
13,700.0	88.45	271.20	9,982.7	6,869.7	85.0	-4,055.6	4,056.5	0.00	442,487.89	557,119.71
13,800.0	88.45	271.20	9,985.4	6,872.4	87.0	-4,155.5	4,156.5	0.00	442,489.98	557,019.77
13,900.0	88.45	271.20	9,988.2	6,875.2	89.1	-4,255.5	4,256.4	0.00	442,492.07	556,919.83
14,000.0	88.45	271.20	9,990.9	6,877.9	91.2	-4,355.4	4,356.4	0.00	442,494.17	556,819.89
14,100.0	88.45	271.20	9,993.6	6,880.6	93.3	-4,455.4	4,456.3	0.00	442,496.26	556,719.95
14,200.0	88.45	271.20	9,996.3	6,883.3	95.4	-4,555.3	4,556.3	0.00	442,498.35	556,620.00
14,300.0	88.45	271.20	9,999.0	6,886.0	97.5	-4,655.3	4,656.3	0.00	442,500.45	556,520.06
14,400.0	88.45	271.20	10,001.7	6,888.7	99.6	-4,755.2	4,756.2	0.00	442,502.54	556,420.12
14,500.0	88.45	271.20	10,004.4	6,891.4	101.7	-4,855.1	4,856.2	0.00	442,504.63	556,320.18
14,515.0	88.45	271.20	10,004.8	6,891.8	102.0	-4,870.1	4,871.2	0.00	442,504.95	556,305.19

TD at 14515.0 - 5 1/2" Production Casing

MOJO Standard Plan

Company:	Caiza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
14,515.0	10,004.8	5 1/2" Production Casing	5-1/2	8-3/4
750.0	750.0	13 3/8" Surface Casing	13-3/8	17-1/2
5,890.0	5,890.0	9 5/8" Intermediate Casing	9-5/8	12-1/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,921.0	6,921.0	1st Bone Spring Sand		0.00	
8,261.0	8,261.0	Harkey		0.00	
2,371.0	2,371.0	Delaware		0.00	
9,175.0	9,175.0	Wolfcamp		0.00	
3,091.0	3,091.0	Cherry Canyon		0.00	
5,611.0	5,611.0	Lower Brushy Canyon		0.00	
7,861.0	7,861.0	2nd Bone Spring Lime		0.00	
501.0	501.0	Rustler		0.00	
781.0	781.0	Top of Salt		0.00	
4,361.0	4,361.0	Brushy Canyon		0.00	
11,380.4	9,920.0	Wolfcamp C		0.00	
5,871.0	5,871.0	Bone Spring/ Glorieta		0.00	
9,375.1	9,375.0	Wolfcamp B		0.00	
8,831.0	8,831.0	3rd Bone Spring Sand		0.00	
7,501.0	7,501.0	2nd Bone Spring Sand		0.00	
2,161.0	2,161.0	Base of Salt		0.00	

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Well Mad River 13 State 5H
Project:	Black River	TVD Reference:	WELL @ 3113.0usft (Original Well Elev)
Site:	Mad River 13 State 5H	MD Reference:	WELL @ 3113.0usft (Original Well Elev)
Well:	Mad River 13 State 5H	North Reference:	Grid
Wellbore:	Mad River 13 State 5H	Survey Calculation Method:	Minimum Curvature
Design:	20170215 Mad River 13 State 5H	Database:	EDM 5000.1 Single User Db

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		
		+N/-S (usft)	+E/-W (usft)	Comment
8,000.0	8,000.0	0.0	0.0	Start 1000.0 hold at 8000.0 MD
9,000.0	9,000.0	0.0	0.0	Start 315.0 hold at 9000.0 MD
9,315.0	9,315.0	0.0	0.0	Start Build 9.99
10,200.0	9,888.1	11.7	-557.7	Start 4315.0 hold at 10200.0 MD
14,515.0	10,004.8	102.0	-4,870.1	TD at 14515.0

Checked By: _____

Approved By: _____

Date: _____



Azimuths to Grid North
True North: -0.10°
Magnetic North: 7.04°

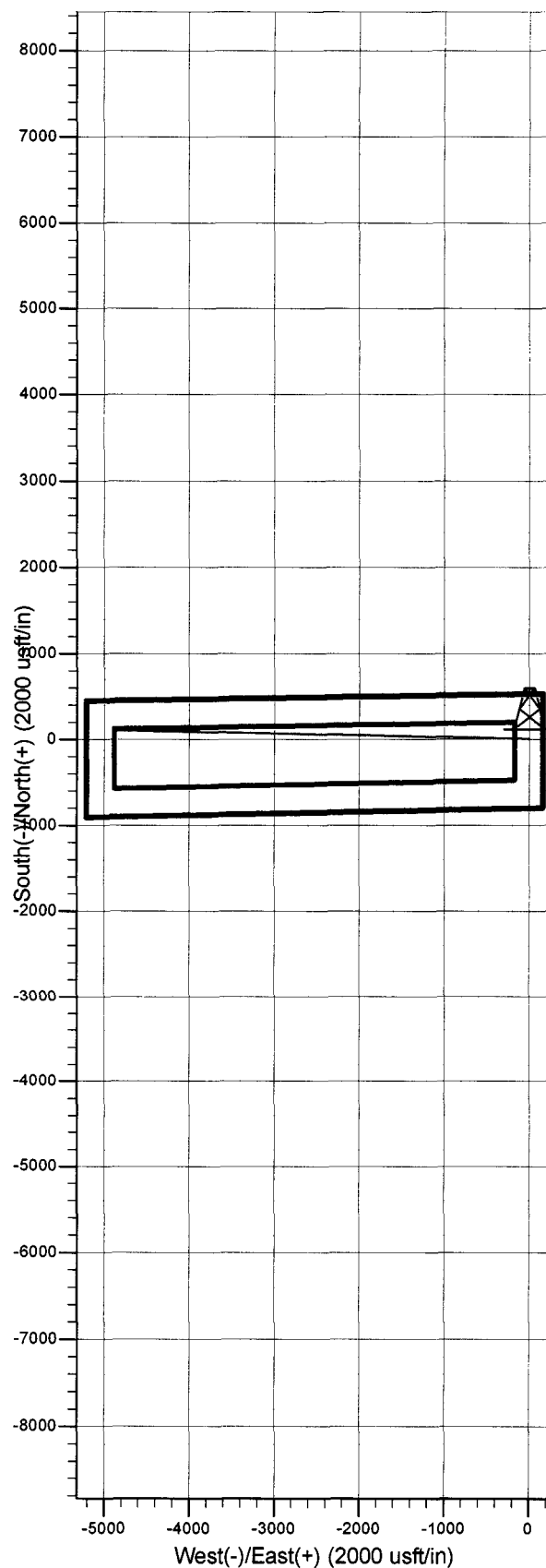
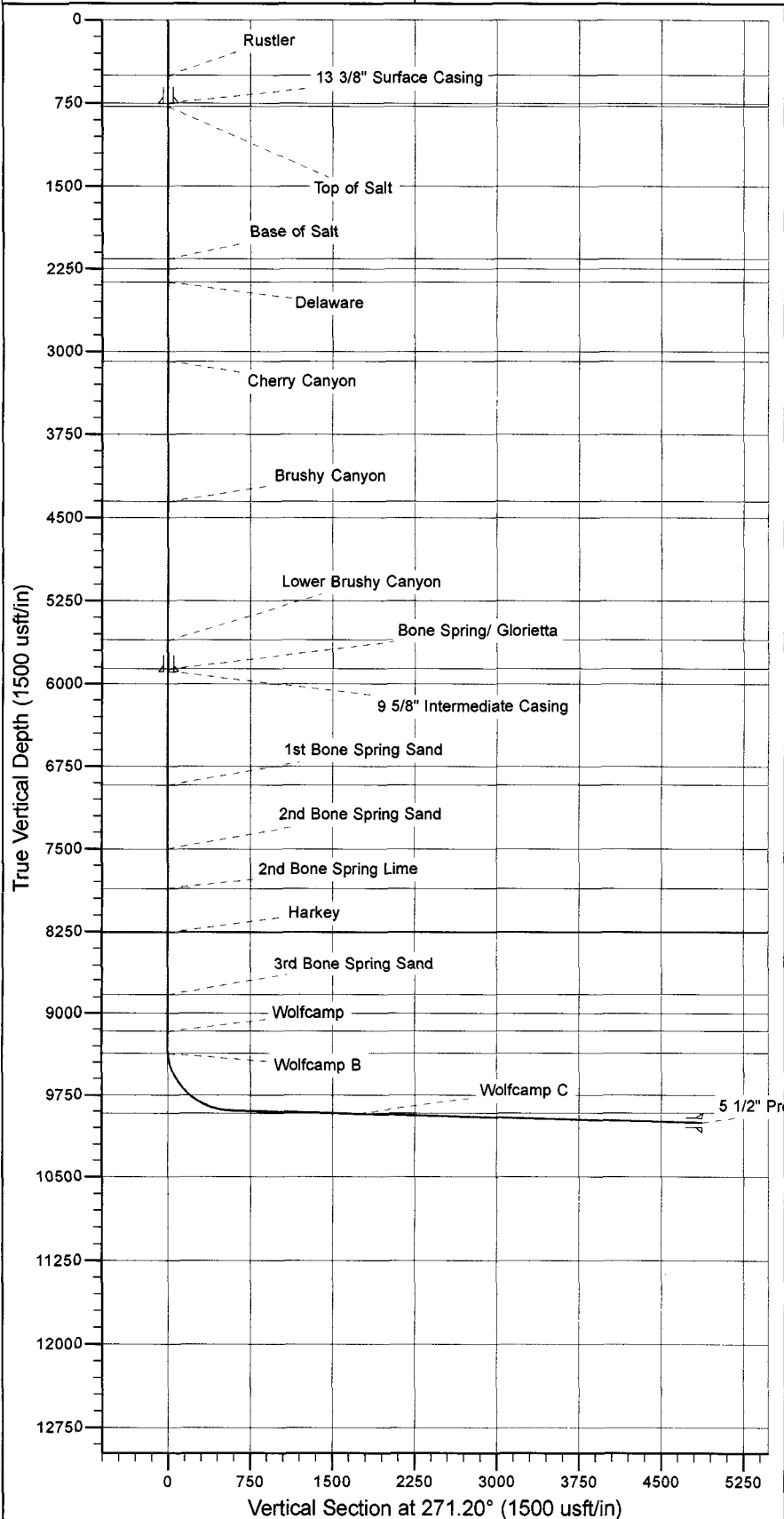
Magnetic Field
Strength: 47988.0snT
Dip Angle: 59.94°
Date: 2/15/2017
Model: IGRF2010



PROJECT DETAILS: Black River

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Mean Sea Level





Azimuths to Grid North
 True North: -0.10°
 Magnetic North: 7.04°

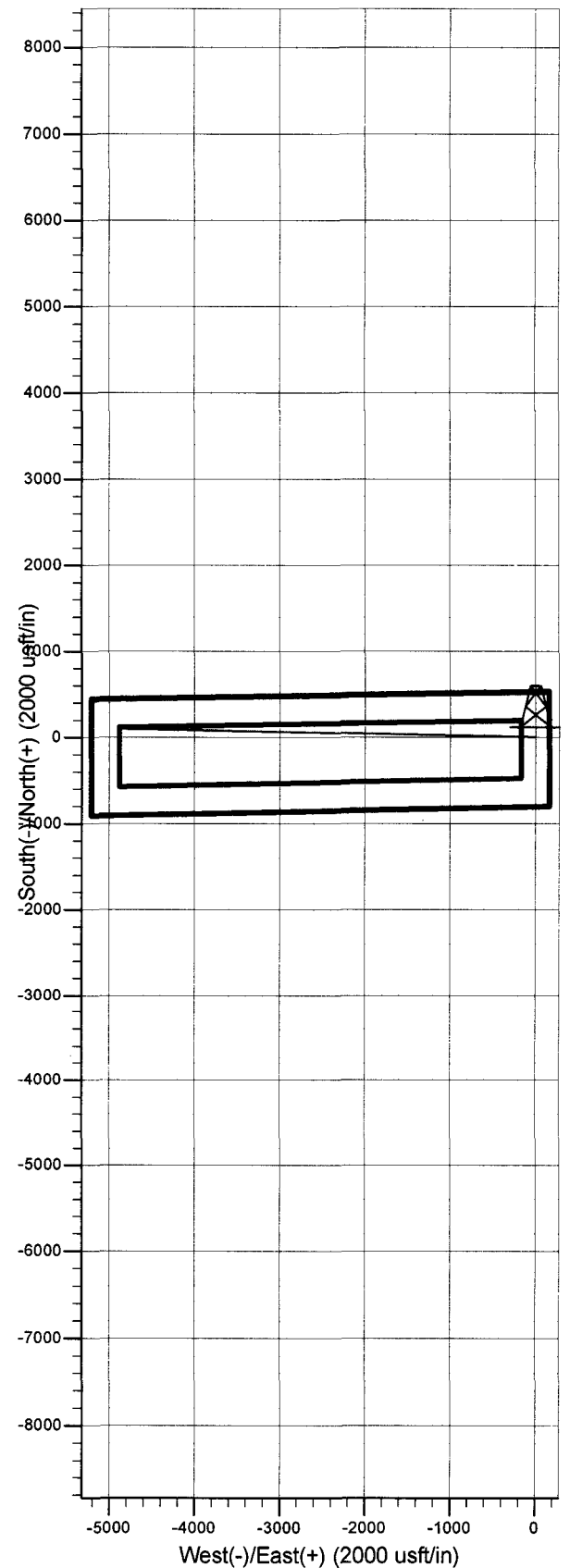
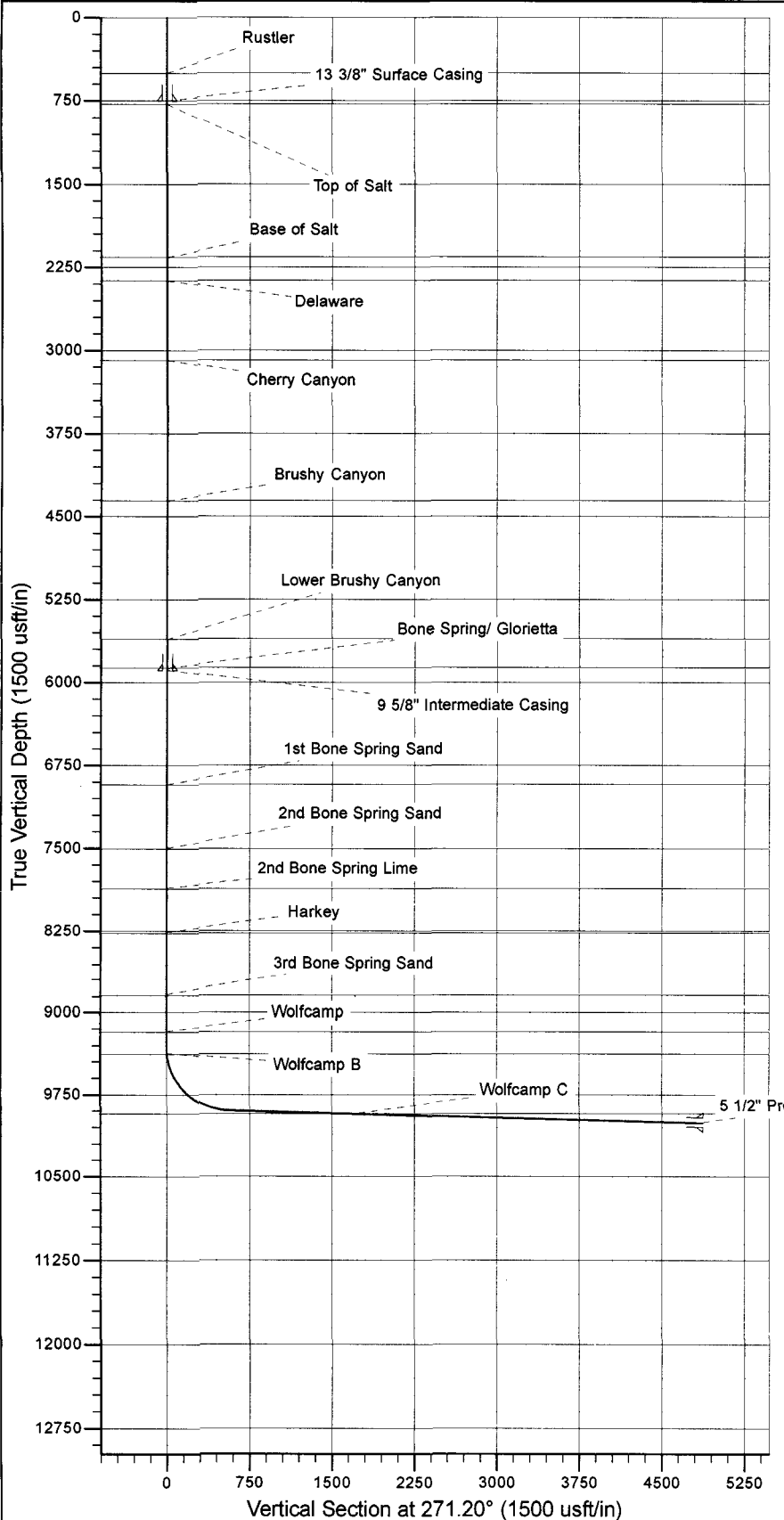
 Magnetic Field
 Strength: 47988.0snT
 Dip Angle: 59.94°
 Date: 2/15/2017
 Model: IGRF2010



PROJECT DETAILS: Black River

Geodetic System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: New Mexico East 3001

 System Datum: Mean Sea Level





Azimuths to Grid North
True North: -0.10°
Magnetic North: 7.04°

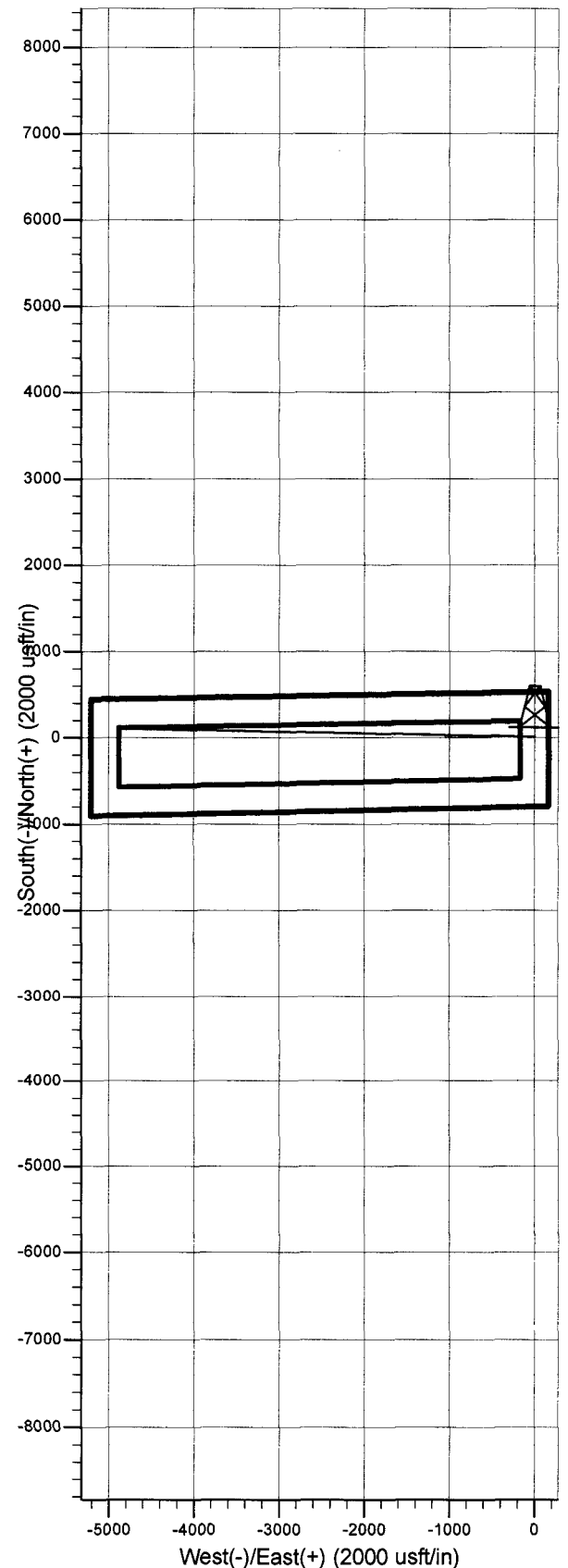
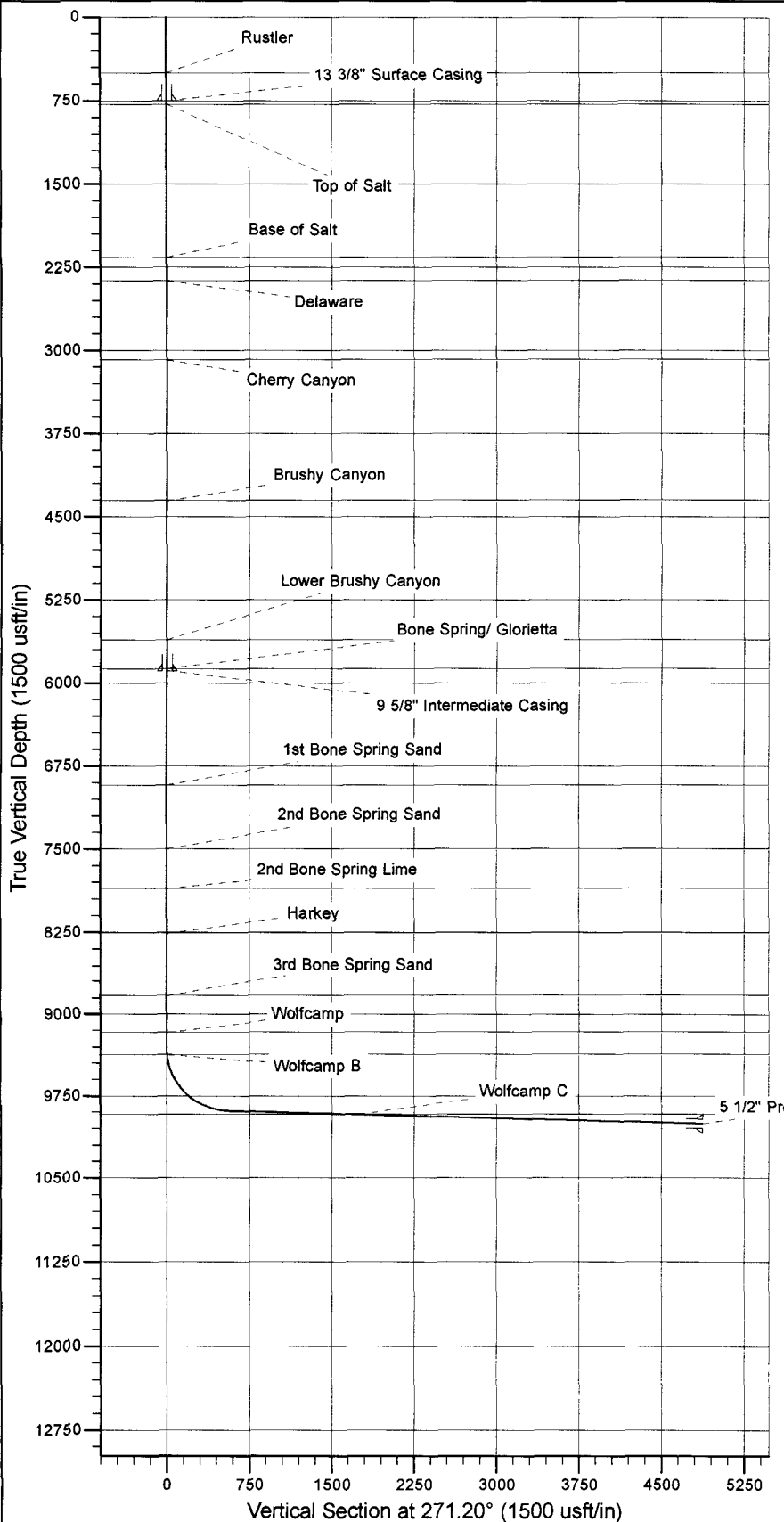
Magnetic Field
Strength: 47988.0snT
Dip Angle: 59.94°
Date: 2/15/2017
Model: IGRF2010



PROJECT DETAILS: Black River

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Mean Sea Level



Design Plan, Operating Plan and Maintenance Plan, and Closure Plan for the OCD form C-144

Design Plan:

Fluid and cuttings coming from drilling operations will pass over the shale shaker with the cuttings going to the haul off bin and the cleaned fluid returning to the working steel pits.

Equipment Includes:

- 1-670bbl steel working pit
- 2-100bbl steel working suction pits
- 2-500bbl steel tanks
- 2-20yd³ steel haul off bins
- 2-pumps (HHF-1600)
- 2-Shale shakers
- 1-Centrifuge
- 1-Desilter/Desander

Operating and Maintenance Plan:

Inspection to occur every tour for proper operation of system and individual components. If any problems are found they will be repaired and/or corrected immediately.

Closure Plan:

All haul off bins containing cuttings will be removed from location and hauled to R-360 (NM-01-0006) disposal site located 30 miles east of Carlsbad.

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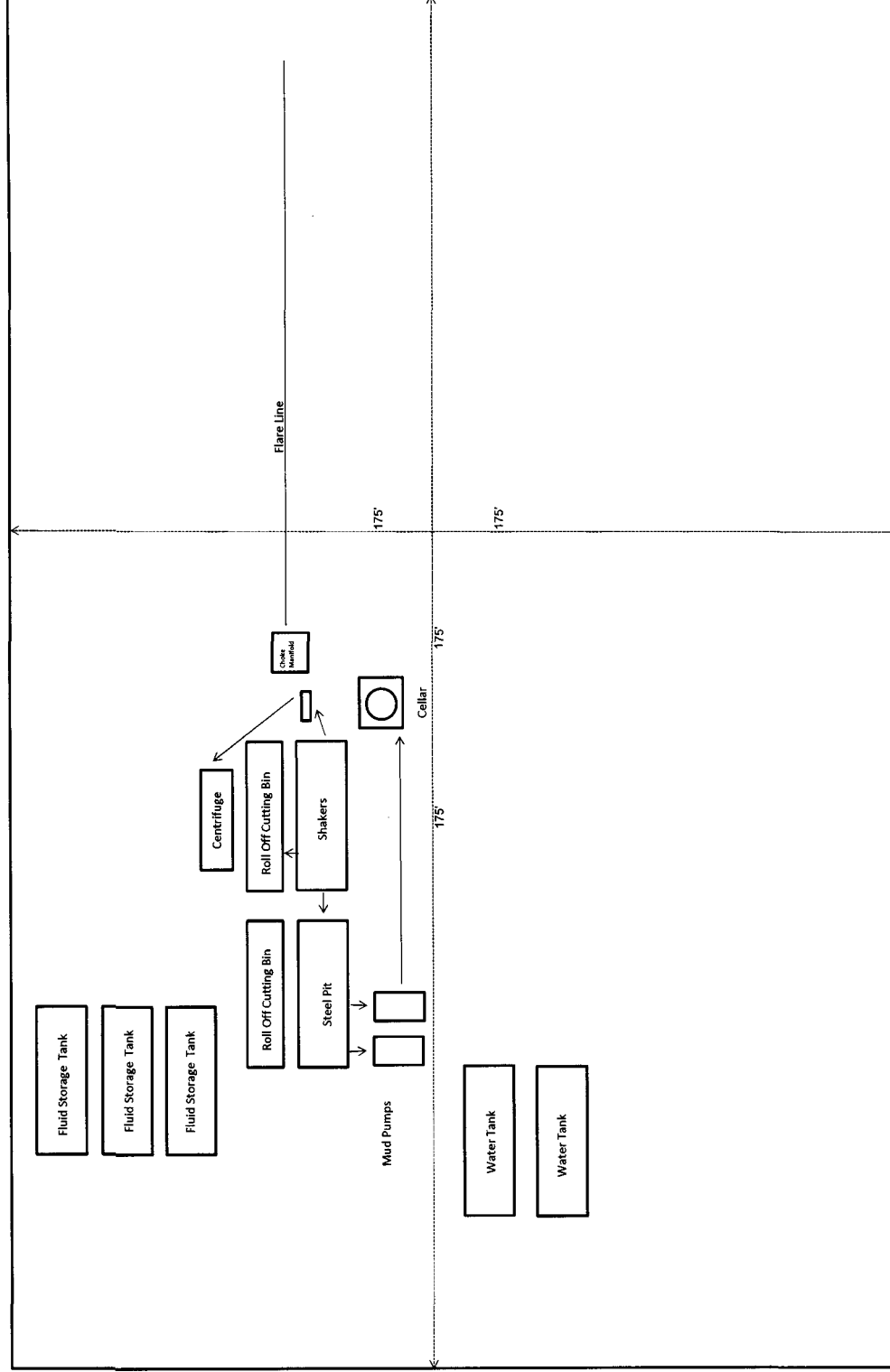
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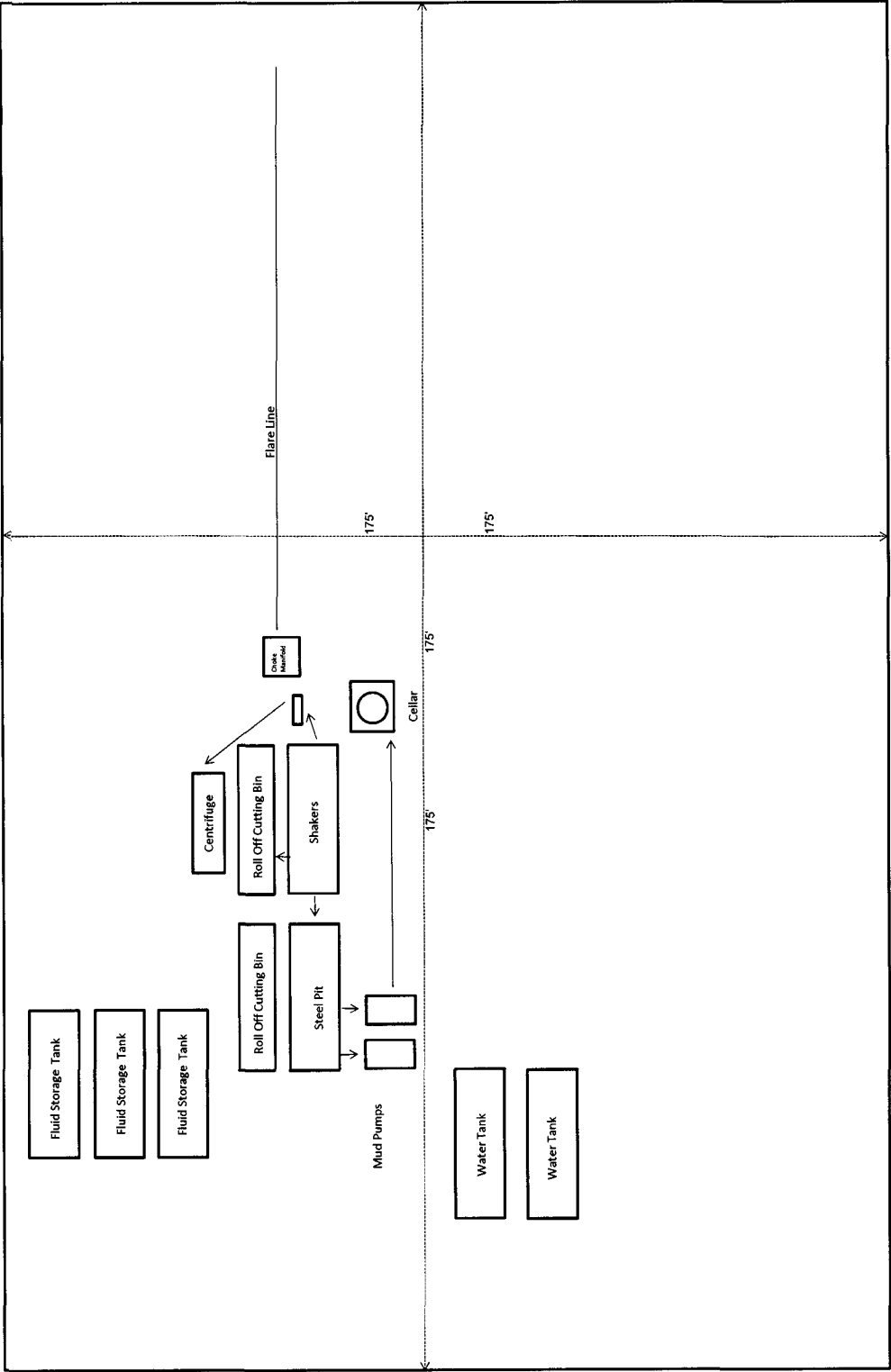
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Closed Loop Diagram Design Plan



Closed Loop Diagram Design Plan



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