

Caza Oil and Gas

East Marathon Road

Igloo 19 State Fed 7H

Igloo 19 State Fed 7H

Igloo 19 State Fed 7H

Plan: 160224 Igloo 19 State Fed 7H

MOJO Standard Plan

24 February, 2016

Oil Conservation Division

Case No. _____

Exhibit No. 17

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State Fed 7H
Project:	East Marathon Road	TVD Reference:	New @ 3707.0usft
Site:	Igloo 19 State Fed 7H	MD Reference:	New @ 3707.0usft
Well:	Igloo 19 State Fed 7H	North Reference:	Grid
Wellbore:	Igloo 19 State Fed 7H	Survey Calculation Method:	Minimum Curvature
Design:	160224 Igloo 19 State Fed 7H	Database:	EDM 5000.1 Single User Db

Project	East Marathon Road		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Igloo 19 State Fed 7H		
Site Position:		Northing:	565,516.94 usft
From:	Lat/Long	Easting:	797,257.37 usft
Position Uncertainty:	1.0 usft	Slot Radius:	20 "
		Latitude:	32° 33' 6.908 N
		Longitude:	103° 30' 9.907 W
		Grid Convergence:	0.45 °

Well	Igloo 19 State Fed 7H		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	1.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Igloo 19 State Fed 7H		
Magnetics	Model Name	Sample Date	Declination
			Dip Angle
			Field Strength
			(nT)
	IGRF2010	2/1/2016	7.00
			60.38
			48,354

Design	160224 Igloo 19 State Fed 7H		
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
			(°)
			355.48

Survey Tool Program	Date	2/24/2016				
From	To	Survey	Tool Name	Description		
(usft)	(usft)	(Wellbore)				
0.0	15,172.0	160224 Igloo 19 State Fed 7H (Igloo 19 St	MWD	MWD - Standard		

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State Fed 7H
Project:	East Marathon Road	TVD Reference:	New @ 3707.0usft
Site:	Igloo 19 State Fed 7H	MD Reference:	New @ 3707.0usft
Well:	Igloo 19 State Fed 7H	North Reference:	Grid
Wellbore:	Igloo 19 State Fed 7H	Survey Calculation Method:	Minimum Curvature
Design:	160224 Igloo 19 State Fed 7H	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	-3,707.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
100.0	0.00	0.00	100.0	-3,607.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
120.0	0.00	0.00	120.0	-3,587.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
20" Conductor											
200.0	0.00	0.00	200.0	-3,507.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
300.0	0.00	0.00	300.0	-3,407.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
400.0	0.00	0.00	400.0	-3,307.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
500.0	0.00	0.00	500.0	-3,207.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
600.0	0.00	0.00	600.0	-3,107.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
700.0	0.00	0.00	700.0	-3,007.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
800.0	0.00	0.00	800.0	-2,907.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
900.0	0.00	0.00	900.0	-2,807.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,000.0	0.00	0.00	1,000.0	-2,707.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,100.0	0.00	0.00	1,100.0	-2,607.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,200.0	0.00	0.00	1,200.0	-2,507.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,300.0	0.00	0.00	1,300.0	-2,407.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,400.0	0.00	0.00	1,400.0	-2,307.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,500.0	0.00	0.00	1,500.0	-2,207.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,600.0	0.00	0.00	1,600.0	-2,107.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,700.0	0.00	0.00	1,700.0	-2,007.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,800.0	0.00	0.00	1,800.0	-1,907.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1,809.0	0.00	0.00	1,809.0	-1,898.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
Rustler											
1,842.0	0.00	0.00	1,842.0	-1,865.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
13 3/8" Surface Casing											
1,900.0	0.00	0.00	1,900.0	-1,807.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
2,000.0	0.00	0.00	2,000.0	-1,707.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State Fed 7H
Project:	East Marathon Road	TVD Reference:	New @ 3707.0usft
Site:	Igloo 19 State Fed 7H	MD Reference:	New @ 3707.0usft
Well:	Igloo 19 State Fed 7H	North Reference:	Grid
Wellbore:	Igloo 19 State Fed 7H	Survey Calculation Method:	Minimum Curvature
Design:	160224 Igloo 19 State Fed 7H	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)	
2,017.0	0.00	0.00	2,017.0	-1,690.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
Top of Salt											
2,100.0	0.00	0.00	2,100.0	-1,607.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
2,200.0	0.00	0.00	2,200.0	-1,507.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
2,300.0	0.00	0.00	2,300.0	-1,407.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
2,400.0	0.00	0.00	2,400.0	-1,307.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
2,500.0	0.00	0.00	2,500.0	-1,207.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
2,600.0	0.00	0.00	2,600.0	-1,107.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
2,700.0	0.00	0.00	2,700.0	-1,007.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
2,800.0	0.00	0.00	2,800.0	-907.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
2,900.0	0.00	0.00	2,900.0	-807.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,000.0	0.00	0.00	3,000.0	-707.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,100.0	0.00	0.00	3,100.0	-607.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,200.0	0.00	0.00	3,200.0	-507.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,300.0	0.00	0.00	3,300.0	-407.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,400.0	0.00	0.00	3,400.0	-307.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,451.0	0.00	0.00	3,451.0	-256.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
Base of Salt											
3,500.0	0.00	0.00	3,500.0	-207.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,600.0	0.00	0.00	3,600.0	-107.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,677.0	0.00	0.00	3,677.0	-30.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
Yates											
3,700.0	0.00	0.00	3,700.0	-7.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,800.0	0.00	0.00	3,800.0	93.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
3,900.0	0.00	0.00	3,900.0	193.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
4,000.0	0.00	0.00	4,000.0	293.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
4,100.0	0.00	0.00	4,100.0	393.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State Fed 7H
Project:	East Marathon Road	TVD Reference:	New @ 3707.0usft
Site:	Igloo 19 State Fed 7H	MD Reference:	New @ 3707.0usft
Well:	Igloo 19 State Fed 7H	North Reference:	Grid
Wellbore:	Igloo 19 State Fed 7H	Survey Calculation Method:	Minimum Curvature
Design:	160224 Igloo 19 State Fed 7H	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)
4,105.0	0.00	0.00	4,105.0	398.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
Capitan Reef										
4,200.0	0.00	0.00	4,200.0	493.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
4,300.0	0.00	0.00	4,300.0	593.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
4,400.0	0.00	0.00	4,400.0	693.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
4,500.0	0.00	0.00	4,500.0	793.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
4,600.0	0.00	0.00	4,600.0	893.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
4,700.0	0.00	0.00	4,700.0	993.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
4,800.0	0.00	0.00	4,800.0	1,093.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
4,900.0	0.00	0.00	4,900.0	1,193.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,000.0	0.00	0.00	5,000.0	1,293.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,100.0	0.00	0.00	5,100.0	1,393.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,200.0	0.00	0.00	5,200.0	1,493.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,300.0	0.00	0.00	5,300.0	1,593.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,400.0	0.00	0.00	5,400.0	1,693.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,500.0	0.00	0.00	5,500.0	1,793.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,600.0	0.00	0.00	5,600.0	1,893.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,700.0	0.00	0.00	5,700.0	1,993.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,800.0	0.00	0.00	5,800.0	2,093.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,825.0	0.00	0.00	5,825.0	2,118.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
9 5/8" Intermediate										
5,900.0	0.00	0.00	5,900.0	2,193.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
5,905.0	0.00	0.00	5,905.0	2,198.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
Cherry Canyon										
6,000.0	0.00	0.00	6,000.0	2,293.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
6,100.0	0.00	0.00	6,100.0	2,393.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
6,200.0	0.00	0.00	6,200.0	2,493.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37

MOJO Standard Plan

Company: Caza Oil and Gas
Project: East Marathon Road
Site: Igloo 19 State Fed 7H
Well: Igloo 19 State Fed 7H
Wellbore: Igloo 19 State Fed 7H
Design: 160224 Igloo 19 State Fed 7H

Local Co-ordinate Reference:

TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Site Igloo 19 State Fed 7H
 New @ 3707.0usft
 New @ 3707.0usft
 Grid
 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)
6,300.0	0.00	0.00	6,300.0	2,593.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
6,400.0	0.00	0.00	6,400.0	2,693.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
6,500.0	0.00	0.00	6,500.0	2,793.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
6,600.0	0.00	0.00	6,600.0	2,893.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
6,700.0	0.00	0.00	6,700.0	2,993.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
6,726.0	0.00	0.00	6,726.0	3,019.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
Brushy Canyon										
6,800.0	0.00	0.00	6,800.0	3,093.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
6,900.0	0.00	0.00	6,900.0	3,193.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,000.0	0.00	0.00	7,000.0	3,293.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,100.0	0.00	0.00	7,100.0	3,393.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,200.0	0.00	0.00	7,200.0	3,493.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,300.0	0.00	0.00	7,300.0	3,593.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,400.0	0.00	0.00	7,400.0	3,693.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,500.0	0.00	0.00	7,500.0	3,793.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,600.0	0.00	0.00	7,600.0	3,893.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,700.0	0.00	0.00	7,700.0	3,993.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,800.0	0.00	0.00	7,800.0	4,093.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
7,900.0	0.00	0.00	7,900.0	4,193.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
8,000.0	0.00	0.00	8,000.0	4,293.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
8,100.0	0.00	0.00	8,100.0	4,393.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
8,200.0	0.00	0.00	8,200.0	4,493.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
8,300.0	0.00	0.00	8,300.0	4,593.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
8,400.0	0.00	0.00	8,400.0	4,693.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
8,489.0	0.00	0.00	8,489.0	4,782.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37
Bone Spring										
8,500.0	0.00	0.00	8,500.0	4,793.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State Fed 7H
Project:	East Marathon Road	TVD Reference:	New @ 3707.0usft
Site:	Igloo 19 State Fed 7H	MD Reference:	New @ 3707.0usft
Well:	Igloo 19 State Fed 7H	North Reference:	Grid
Wellbore:	Igloo 19 State Fed 7H	Survey Calculation Method:	Minimum Curvature
Design:	160224 Igloo 19 State Fed 7H	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)	
8,600.0	0.00	0.00	8,600.0	4,893.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
8,700.0	0.00	0.00	8,700.0	4,993.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
8,800.0	0.00	0.00	8,800.0	5,093.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
8,900.0	0.00	0.00	8,900.0	5,193.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,000.0	0.00	0.00	9,000.0	5,293.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,100.0	0.00	0.00	9,100.0	5,393.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,200.0	0.00	0.00	9,200.0	5,493.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,300.0	0.00	0.00	9,300.0	5,593.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,400.0	0.00	0.00	9,400.0	5,693.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,500.0	0.00	0.00	9,500.0	5,793.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,600.0	0.00	0.00	9,600.0	5,893.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,666.0	0.00	0.00	9,666.0	5,959.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
1st Bone Spring Sand											
9,700.0	0.00	0.00	9,700.0	5,993.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,800.0	0.00	0.00	9,800.0	6,093.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
9,900.0	0.00	0.00	9,900.0	6,193.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
10,000.0	0.00	0.00	10,000.0	6,293.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
10,050.0	0.00	0.00	10,050.0	6,343.0	0.0	0.0	0.0	0.00	565,516.94	797,257.37	
Start Build 10.01											
10,100.0	5.00	340.00	10,099.9	6,392.9	2.1	-0.7	2.1	10.01	565,518.99	797,256.63	
10,200.0	15.01	340.00	10,198.3	6,491.3	18.4	-6.7	18.8	10.01	565,535.30	797,250.69	
10,300.0	25.02	340.00	10,292.1	6,585.1	50.5	-18.4	51.8	10.01	565,567.42	797,239.00	
10,310.9	26.11	340.00	10,302.0	6,595.0	54.9	-20.0	56.3	10.01	565,571.86	797,237.38	
2nd Bone Spring Sand											
10,400.0	35.03	340.00	10,378.6	6,671.6	97.4	-35.5	99.9	10.01	565,614.38	797,221.91	
10,500.0	45.03	340.00	10,455.1	6,748.1	157.8	-57.4	161.8	10.01	565,674.74	797,199.94	
10,600.0	55.04	340.00	10,519.2	6,812.2	229.7	-83.6	235.6	10.01	565,746.67	797,173.75	

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State Fed 7H
Project:	East Marathon Road	TVD Reference:	New @ 3707.0usft
Site:	Igloo 19 State Fed 7H	MD Reference:	New @ 3707.0usft
Well:	Igloo 19 State Fed 7H	North Reference:	Grid
Wellbore:	Igloo 19 State Fed 7H	Survey Calculation Method:	Minimum Curvature
Design:	160224 Igloo 19 State Fed 7H	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)
10,700.0	65.05	340.00	10,569.1	6,862.1	311.0	-113.2	319.0	10.01	565,827.99	797,144.16
10,800.0	75.06	340.00	10,603.2	6,896.2	399.3	-145.3	409.5	10.01	565,916.21	797,112.05
10,900.0	85.06	340.00	10,620.4	6,913.4	491.7	-179.0	504.3	10.01	566,008.65	797,078.40
10,967.0	91.77	340.00	10,622.2	6,915.2	554.6	-201.9	568.8	10.01	566,071.55	797,055.51
Start DLS 2.00 TFO 89.97										
11,000.0	91.77	340.66	10,621.2	6,914.2	585.7	-213.0	600.6	2.00	566,102.61	797,044.41
11,067.0	91.77	342.00	10,619.2	6,912.2	649.1	-234.4	665.6	2.00	566,166.05	797,022.97
Start Turn 2.00										
11,100.0	91.77	342.66	10,618.1	6,911.1	680.5	-244.4	697.7	2.00	566,197.48	797,012.96
11,167.0	91.77	344.00	10,616.1	6,909.1	744.7	-263.6	763.2	2.00	566,261.63	796,993.75
11,200.0	91.77	344.66	10,615.1	6,908.1	776.5	-272.5	795.5	2.00	566,293.39	796,984.84
11,267.0	91.77	346.00	10,613.0	6,906.0	841.2	-289.5	861.4	2.00	566,358.17	796,967.88
11,300.0	91.77	346.66	10,612.0	6,905.0	873.3	-297.3	894.0	2.00	566,390.22	796,960.09
11,367.0	91.77	348.00	10,609.9	6,902.9	938.6	-312.0	960.3	2.00	566,455.56	796,945.40
11,400.0	91.77	348.66	10,608.9	6,901.9	970.9	-318.6	993.0	2.00	566,487.86	796,938.73
11,467.0	91.77	350.00	10,606.8	6,899.8	1,036.7	-331.0	1,059.6	2.00	566,553.67	796,926.33
11,500.0	91.77	350.66	10,605.8	6,898.8	1,069.2	-336.6	1,092.4	2.00	566,586.18	796,920.79
11,567.0	91.77	352.00	10,603.7	6,896.7	1,135.4	-346.7	1,159.2	2.00	566,652.39	796,910.69
11,600.0	91.77	352.66	10,602.7	6,895.7	1,168.1	-351.1	1,192.2	2.00	566,685.07	796,906.29
11,667.0	91.77	354.00	10,600.6	6,893.6	1,234.6	-358.9	1,259.1	2.00	566,751.59	796,898.51
11,700.0	91.77	354.66	10,599.6	6,892.6	1,267.5	-362.1	1,292.1	2.00	566,784.41	796,895.25
11,767.0	91.77	356.00	10,597.5	6,890.5	1,334.2	-367.6	1,359.0	2.00	566,851.15	796,889.80
11,800.0	91.77	356.66	10,596.5	6,889.5	1,367.1	-369.7	1,392.0	2.00	566,884.07	796,887.69
11,867.0	91.77	358.00	10,594.4	6,887.4	1,434.0	-372.8	1,458.9	2.00	566,950.96	796,884.57
11,900.0	91.77	358.66	10,593.4	6,886.4	1,467.0	-373.8	1,491.9	2.00	566,983.93	796,883.61
11,967.0	91.77	0.00	10,591.4	6,884.4	1,534.0	-374.5	1,558.7	2.00	567,050.90	796,882.82
Start Turn 0.00										

MOJO Standard Plan

Company: Caza Oil and Gas
 Project: East Marathon Road
 Site: Igloo 19 State Fed 7H
 Well: Igloo 19 State Fed 7H
 Wellbore: Igloo 19 State Fed 7H
 Design: 160224 Igloo 19 State Fed 7H

Local Co-ordinate Reference: Site Igloo 19 State Fed 7H
 TVD Reference: New @ 3707.0usft
 MD Reference: New @ 3707.0usft
 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)
12,000.0	91.77	0.00	10,590.3	6,883.3	1,566.9	-374.5	1,591.6	0.00	567,083.88	796,882.82
12,100.0	91.77	0.00	10,587.2	6,880.2	1,666.9	-374.5	1,691.2	0.00	567,183.83	796,882.82
12,200.0	91.77	0.00	10,584.2	6,877.2	1,766.8	-374.5	1,790.9	0.00	567,283.79	796,882.82
12,300.0	91.77	0.00	10,581.1	6,874.1	1,866.8	-374.5	1,890.5	0.00	567,383.74	796,882.82
12,400.0	91.77	0.00	10,578.0	6,871.0	1,966.8	-374.5	1,990.2	0.00	567,483.69	796,882.82
12,500.0	91.77	0.00	10,574.9	6,867.9	2,066.7	-374.5	2,089.8	0.00	567,583.64	796,882.82
12,600.0	91.77	0.00	10,571.8	6,864.8	2,166.7	-374.5	2,189.4	0.00	567,683.59	796,882.82
12,700.0	91.77	0.00	10,568.7	6,861.7	2,266.6	-374.5	2,289.1	0.00	567,783.55	796,882.82
12,800.0	91.77	0.00	10,565.6	6,858.6	2,366.6	-374.5	2,388.7	0.00	567,883.50	796,882.82
12,875.0	91.77	0.00	10,563.3	6,856.3	2,441.5	-374.5	2,463.5	0.00	567,958.46	796,882.82
12,900.0	91.77	0.00	10,562.5	6,855.5	2,466.5	-374.5	2,488.4	0.00	567,983.45	796,882.82
13,000.0	91.77	0.00	10,559.5	6,852.5	2,566.5	-374.5	2,588.0	0.00	568,083.40	796,882.82
13,100.0	91.77	0.00	10,556.4	6,849.4	2,666.4	-374.5	2,687.6	0.00	568,183.36	796,882.82
13,200.0	91.77	0.00	10,553.3	6,846.3	2,766.4	-374.5	2,787.3	0.00	568,283.31	796,882.82
13,300.0	91.77	0.00	10,550.2	6,843.2	2,866.3	-374.5	2,886.9	0.00	568,383.26	796,882.82
13,400.0	91.77	0.00	10,547.1	6,840.1	2,966.3	-374.5	2,986.6	0.00	568,483.21	796,882.82
13,500.0	91.77	0.00	10,544.0	6,837.0	3,066.2	-374.5	3,086.2	0.00	568,583.17	796,882.82
13,600.0	91.77	0.00	10,540.9	6,833.9	3,166.2	-374.5	3,185.9	0.00	568,683.12	796,882.82
13,700.0	91.77	0.00	10,537.8	6,830.8	3,266.1	-374.5	3,285.5	0.00	568,783.07	796,882.82
13,800.0	91.77	0.00	10,534.7	6,827.7	3,366.1	-374.5	3,385.1	0.00	568,883.02	796,882.82
13,900.0	91.77	0.00	10,531.7	6,824.7	3,466.0	-374.5	3,484.8	0.00	568,982.97	796,882.82
14,000.0	91.77	0.00	10,528.6	6,821.6	3,566.0	-374.5	3,584.4	0.00	569,082.93	796,882.82
14,100.0	91.77	0.00	10,525.5	6,818.5	3,665.9	-374.5	3,684.1	0.00	569,182.88	796,882.82
14,200.0	91.77	0.00	10,522.4	6,815.4	3,765.9	-374.5	3,783.7	0.00	569,282.83	796,882.82
14,300.0	91.77	0.00	10,519.3	6,812.3	3,865.8	-374.5	3,883.3	0.00	569,382.78	796,882.82
14,400.0	91.77	0.00	10,516.2	6,809.2	3,965.8	-374.5	3,983.0	0.00	569,482.74	796,882.82
14,500.0	91.77	0.00	10,513.1	6,806.1	4,065.8	-374.5	4,082.6	0.00	569,582.69	796,882.82

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State Fed 7H
Project:	East Marathon Road	TVD Reference:	New @ 3707.0usft
Site:	Igloo 19 State Fed 7H	MD Reference:	New @ 3707.0usft
Well:	Igloo 19 State Fed 7H	North Reference:	Grid
Wellbore:	Igloo 19 State Fed 7H	Survey Calculation Method:	Minimum Curvature
Design:	160224 Igloo 19 State Fed 7H	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)
14,600.0	91.77	0.00	10,510.0	6,803.0	4,165.7	-374.5	4,182.3	0.00	569,682.64	796,882.82
14,700.0	91.77	0.00	10,506.9	6,799.9	4,265.7	-374.5	4,281.9	0.00	569,782.59	796,882.82
14,800.0	91.77	0.00	10,503.9	6,796.9	4,365.6	-374.5	4,381.5	0.00	569,882.54	796,882.82
14,900.0	91.77	0.00	10,500.8	6,793.8	4,465.6	-374.5	4,481.2	0.00	569,982.50	796,882.82
15,000.0	91.77	0.00	10,497.7	6,790.7	4,565.5	-374.5	4,580.8	0.00	570,082.45	796,882.82
15,100.0	91.77	0.00	10,494.6	6,787.6	4,665.5	-374.5	4,680.5	0.00	570,182.40	796,882.82
15,172.0	91.77	0.00	10,492.4	6,785.4	4,737.4	-374.5	4,752.2	0.00	570,254.37	796,882.82
TD at 15172.0 - 5 1/2" Production										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
120.0	120.0	20" Conductor	20	26	
15,172.0	10,492.4	5 1/2" Production	5-1/2	8-3/4	
5,825.0	5,825.0	9 5/8" Intermediate	9-5/8	12-1/4	
1,842.0	1,842.0	13 3/8" Surface Casing	13-3/8	16	

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State Fed 7H
Project:	East Marathon Road	TVD Reference:	New @ 3707.0usft
Site:	Igloo 19 State Fed 7H	MD Reference:	New @ 3707.0usft
Well:	Igloo 19 State Fed 7H	North Reference:	Grid
Wellbore:	Igloo 19 State Fed 7H	Survey Calculation Method:	Minimum Curvature
Design:	160224 Igloo 19 State Fed 7H	Database:	EDM 5000.1 Single User Db

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,726.0	6,726.0	Brushy Canyon		0.00		
3,451.0	3,451.0	Base of Salt		0.00		
4,105.0	4,105.0	Capitan Reef		0.00		
2,017.0	2,017.0	Top of Salt		0.00		
1,809.0	1,809.0	Rustler		0.00		
9,666.0	9,666.0	1st Bone Spring Sand		0.00		
5,905.0	5,905.0	Cherry Canyon		0.00		
3,677.0	3,677.0	Yates		0.00		
8,489.0	8,489.0	Bone Spring		0.00		
10,310.9	10,302.0	2nd Bone Spring Sand		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
10,050.0	10,050.0	0.0	0.0	Start Build 10.01	
10,967.0	10,622.2	76.0	-27.7	Start DLS 2.00 TFO 89.97	
11,067.0	10,619.2	554.6	-201.9	Start Turn 2.00	
11,967.0	10,591.4	649.1	-234.4	Start Turn 0.00	
15,172.0	10,492.4	744.7	-263.6	TD at 15172.0	

Checked By: _____	Approved By: _____	Date: _____
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Azimuths to Grid North
 True North: -0.45°
 Magnetic North: 6.56°

 Magnetic Field
 Strength: 48354.4snT
 Dip Angle: 60.38°
 Date: 2/1/2016
 Model: IGRF2010



PROJECT DETAILS: East Marathon Road

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1809.0	1809.0	Rustler
2017.0	2017.0	Top of Salt
3451.0	3451.0	Base of Salt
3677.0	3677.0	Yates
4105.0	4105.0	Capitan Reef
5905.0	5905.0	Cherry Canyon
6726.0	6726.0	Brushy Canyon
8489.0	8489.0	Bone Spring
9666.0	9666.0	1st Bone Spring Sand
10302.0	10310.9	2nd Bone Spring Sand

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
10050.0	10050.0	0.00	0.00	0.0	0.0	0.0	0.0	Start Build 10.01
10622.2	10967.0	91.77	340.00	554.6	-201.9	568.8	590.2	Start DLS 2.00 TFO 89.97
10619.2	11067.0	91.77	342.00	649.1	-234.4	665.6	690.2	Start Turn 2.00
10591.4	11967.0	91.77	0.00	1534.0	-374.5	1558.7	1589.7	Start Turn 0.00
10492.4	15172.0	91.77	0.00	4737.4	-374.5	4752.2	4793.2	TD at 15172.0

CASING DETAILS

TVD	MD	Name	Size
120.0	120.0	20" Conductor	20
1842.0	1842.0	13 3/8" Surface Casing	13-3/8
5825.0	5825.0	9 5/8" Intermediate	9-5/8
10492.4	15172.0	5 1/2" Production	5-1/2

