



Azimuths to Grid North
True North: -0.45°
Magnetic North: 6.49°

Magnetic Field
Strength: 48306.9snT
Dip Angle: 60.37°
Date: 7/26/2016
Model: IGRF2010



Caza
Oil & Gas, Inc.

AUG 02 2016

RECEIVED

HOBBS OCL

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

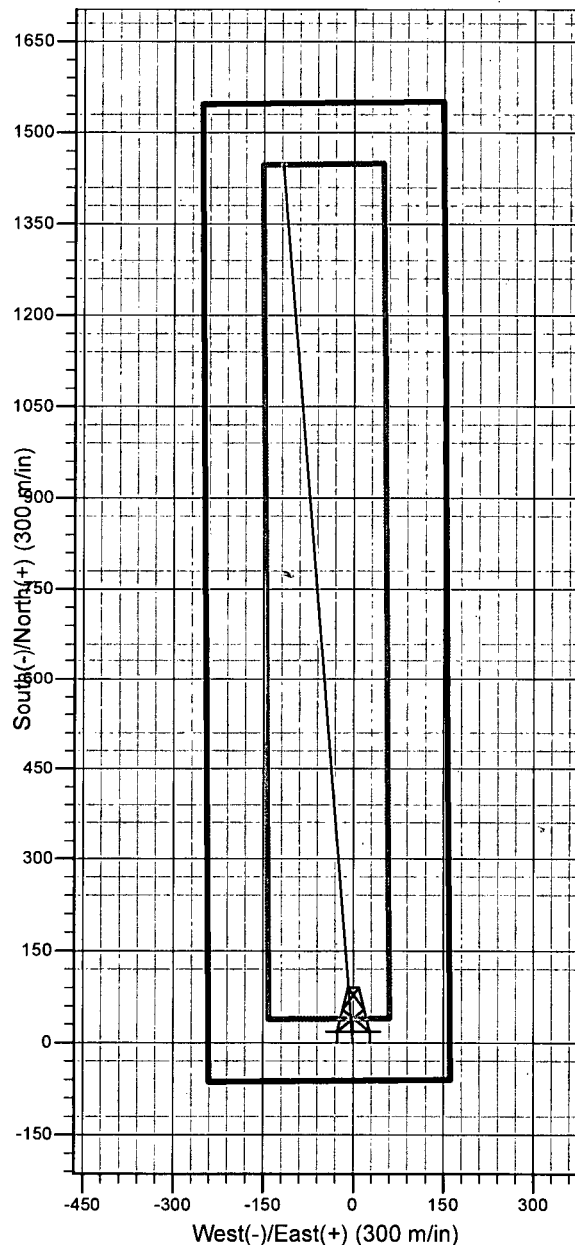
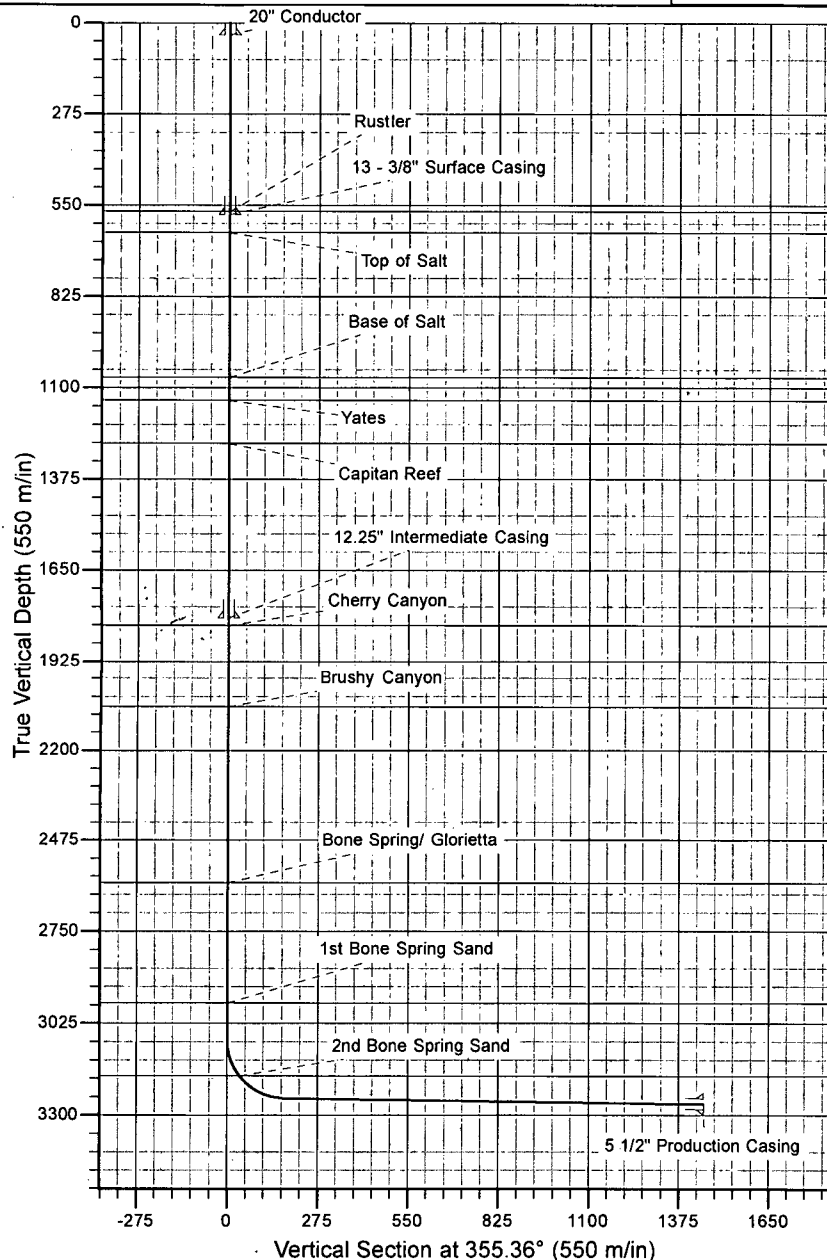
TVDPath	MDPath	Formation
568.91	568.91	Rustler
632.92	632.92	Top of Salt
1068.78	1068.78	Base of Salt
1138.89	1138.89	Yates
1268.43	1268.43	Capitan Reef
1817.07	1817.07	Cherry Canyon
2068.53	2068.53	Brushy Canyon
2604.98	2604.98	Bone Spring/ Glorietta
2964.64	2964.64	1st Bone Spring Sand
3182.88	3191.45	2nd Bone Spring Sand

ANNOTATIONS

TVD	MD	Inc	Azi	+N-S	+E-W	VSec	Departure	Annotation
3073.91	3073.91	0.00	0.00	0.00	0.00	0.00	0.00	Start Build 9.94
3249.61	3347.63	89.25	355.36	172.85	-14.03	173.41	173.41	Start Turn 0.00
3266.35	4626.26	89.25	355.36	1447.18	-117.45	1451.94	1451.94	TD at 15178.0

CASING DETAILS

TVD	MD	Name	Size
36.58	36.58	20" Conductor	20.000
577.60	577.60	13 - 3/8" Surface Casing	13.375
1793.75	1793.75	12.25" Intermediate Casing	9.625
3266.35	4626.26	5 1/2" Production Casing	5.500



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Caza Oil and Gas

East Marathon Road

Igloo 19 State 4H

Igloo 19 State 4H

Igloo 19 State 4H

Plan: 160726 Igloo 19 State 4H

MOJO Standard Plan

26 July, 2016

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State 4H
Project:	East Marathon Road	TVD Reference:	WELL @ 3711.5usft (Original Well Elev)
Site:	Igloo 19 State 4H	MD Reference:	WELL @ 3711.5usft (Original Well Elev)
Well:	Igloo 19 State 4H	North Reference:	Grid
Wellbore:	Igloo 19 State 4H	Survey Calculation Method:	Minimum Curvature
Design:	160726 Igloo 19 State 4H	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 4H			
Site Position:		Northing:	565,541.99 usft
From:	Lat/Long	Easting:	799,941.47 usft
Position Uncertainty:	1.0 usft	Slot Radius:	17-1/2 "
		Latitude:	32° 33' 6.948 N
		Longitude:	103° 29' 38.548 W
		Grid Convergence:	0.45 °

Well Igloo 19 State 4H			
Well Position	+N/-S 0.0 usft	Northing:	565,541.99 usft
	+E/-W 0.0 usft	Easting:	799,941.47 usft
Position Uncertainty	1.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 33' 6.948 N
		Longitude:	103° 29' 38.548 W
		Ground Level:	3,693.0 usft

Wellbore Igloo 19 State 4H			
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	7/26/2016	6.94
			Dip Angle (°)
			60.37
			Field Strength (nT)
			48,307

Design 160726 Igloo 19 State 4H			
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			355.36

Survey Tool Program Date 7/26/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
0.0	15,178.0	160726 Igloo 19 State 4H (Igloo 19 State 4	MWD
			Description
			MWD - Standard

MOJO Standard Plan

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Site: Igloo 19 State 4H		MD Reference:			WELL @ 3711.5usft (Original Well Elev)		
Well: Igloo 19 State 4H		North Reference:			Grid		
Wellbore: Igloo 19 State 4H		Survey Calculation Method:			Minimum Curvature		
Design: 160726 Igloo 19 State 4H		Database:			EDM 5000.1 Single User Db		

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0.0	0.00	0.00	0.0	-3,711.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
100.0	0.00	0.00	100.0	-3,611.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
120.0	0.00	0.00	120.0	-3,591.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
20" Conductor											
200.0	0.00	0.00	200.0	-3,511.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
300.0	0.00	0.00	300.0	-3,411.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
400.0	0.00	0.00	400.0	-3,311.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
500.0	0.00	0.00	500.0	-3,211.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
600.0	0.00	0.00	600.0	-3,111.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
700.0	0.00	0.00	700.0	-3,011.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
800.0	0.00	0.00	800.0	-2,911.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
900.0	0.00	0.00	900.0	-2,811.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,000.0	0.00	0.00	1,000.0	-2,711.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,100.0	0.00	0.00	1,100.0	-2,611.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,200.0	0.00	0.00	1,200.0	-2,511.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,300.0	0.00	0.00	1,300.0	-2,411.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,400.0	0.00	0.00	1,400.0	-2,311.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,500.0	0.00	0.00	1,500.0	-2,211.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,600.0	0.00	0.00	1,600.0	-2,111.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,700.0	0.00	0.00	1,700.0	-2,011.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,800.0	0.00	0.00	1,800.0	-1,911.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1,866.5	0.00	0.00	1,866.5	-1,845.0	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
Rustler											
1,895.0	0.00	0.00	1,895.0	-1,816.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
13 - 3/8" Surface Casing											
1,900.0	0.00	0.00	1,900.0	-1,811.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
2,000.0	0.00	0.00	2,000.0	-1,711.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State 4H
Project:	East Marathon Road	TVD Reference:	WELL @ 3711.5usft (Original Well Elev)
Site:	Igloo 19 State 4H	MD Reference:	WELL @ 3711.5usft (Original Well Elev)
Well:	Igloo 19 State 4H	North Reference:	Grid
Wellbore:	Igloo 19 State 4H	Survey Calculation Method:	Minimum Curvature
Design:	160726 Igloo 19 State 4H	Database:	EDM 5000.1 Single User Db

Planned Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)		
2,076.5	0.00	0.00	2,076.5	-1,635.0	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
Top of Salt												
2,100.0	0.00	0.00	2,100.0	-1,611.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
2,200.0	0.00	0.00	2,200.0	-1,511.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
2,300.0	0.00	0.00	2,300.0	-1,411.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
2,400.0	0.00	0.00	2,400.0	-1,311.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
2,500.0	0.00	0.00	2,500.0	-1,211.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
2,600.0	0.00	0.00	2,600.0	-1,111.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
2,700.0	0.00	0.00	2,700.0	-1,011.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
2,800.0	0.00	0.00	2,800.0	-911.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
2,900.0	0.00	0.00	2,900.0	-811.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,000.0	0.00	0.00	3,000.0	-711.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,100.0	0.00	0.00	3,100.0	-611.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,200.0	0.00	0.00	3,200.0	-511.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,300.0	0.00	0.00	3,300.0	-411.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,400.0	0.00	0.00	3,400.0	-311.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,500.0	0.00	0.00	3,500.0	-211.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,506.5	0.00	0.00	3,506.5	-205.0	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
Base of Salt												
3,600.0	0.00	0.00	3,600.0	-111.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,700.0	0.00	0.00	3,700.0	-11.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,736.5	0.00	0.00	3,736.5	25.0	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
Yates												
3,800.0	0.00	0.00	3,800.0	88.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
3,900.0	0.00	0.00	3,900.0	188.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
4,000.0	0.00	0.00	4,000.0	288.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
4,100.0	0.00	0.00	4,100.0	388.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		

MOJO Standard Plan

Company: Caza Oil and Gas		Local Co-ordinate Reference: Site Igloo 19 State 4H	
Project: East Marathon Road		TVD Reference: WELL @ 3711.5usft (Original Well Elev)	
Site: Igloo 19 State 4H		MD Reference: WELL @ 3711.5usft (Original Well Elev)	
Well: Igloo 19 State 4H		North Reference: Grid	
Wellbore: Igloo 19 State 4H		Survey Calculation Method: Minimum Curvature	
Design: 160726 Igloo 19 State 4H		Database: EDM 5000.1 Single User Db	

Planned Survey												
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)		
4,161.5	0.00	0.00	4,161.5	450.0	0.0	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
Capitan Reef												
4,200.0	0.00	0.00	4,200.0	488.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
4,300.0	0.00	0.00	4,300.0	588.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
4,400.0	0.00	0.00	4,400.0	688.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
4,500.0	0.00	0.00	4,500.0	788.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
4,600.0	0.00	0.00	4,600.0	888.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
4,700.0	0.00	0.00	4,700.0	988.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
4,800.0	0.00	0.00	4,800.0	1,088.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
4,900.0	0.00	0.00	4,900.0	1,188.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,000.0	0.00	0.00	5,000.0	1,288.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,100.0	0.00	0.00	5,100.0	1,388.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,200.0	0.00	0.00	5,200.0	1,488.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,300.0	0.00	0.00	5,300.0	1,588.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,400.0	0.00	0.00	5,400.0	1,688.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,500.0	0.00	0.00	5,500.0	1,788.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,600.0	0.00	0.00	5,600.0	1,888.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,700.0	0.00	0.00	5,700.0	1,988.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,800.0	0.00	0.00	5,800.0	2,088.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,885.0	0.00	0.00	5,885.0	2,173.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
12.25" Intermediate Casing												
5,900.0	0.00	0.00	5,900.0	2,188.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
5,961.5	0.00	0.00	5,961.5	2,250.0	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
Cherry Canyon												
6,000.0	0.00	0.00	6,000.0	2,288.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
6,100.0	0.00	0.00	6,100.0	2,388.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
6,200.0	0.00	0.00	6,200.0	2,488.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		

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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)		
6,300.0	0.00	0.00	6,300.0	2,588.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
6,400.0	0.00	0.00	6,400.0	2,688.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
6,500.0	0.00	0.00	6,500.0	2,788.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
6,600.0	0.00	0.00	6,600.0	2,888.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
6,700.0	0.00	0.00	6,700.0	2,988.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
6,786.5	0.00	0.00	6,786.5	3,075.0	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
Brushy Canyon												
6,800.0	0.00	0.00	6,800.0	3,088.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
6,900.0	0.00	0.00	6,900.0	3,188.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,000.0	0.00	0.00	7,000.0	3,288.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,100.0	0.00	0.00	7,100.0	3,388.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,200.0	0.00	0.00	7,200.0	3,488.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,300.0	0.00	0.00	7,300.0	3,588.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,400.0	0.00	0.00	7,400.0	3,688.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,500.0	0.00	0.00	7,500.0	3,788.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,600.0	0.00	0.00	7,600.0	3,888.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,700.0	0.00	0.00	7,700.0	3,988.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,800.0	0.00	0.00	7,800.0	4,088.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
7,900.0	0.00	0.00	7,900.0	4,188.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
8,000.0	0.00	0.00	8,000.0	4,288.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
8,100.0	0.00	0.00	8,100.0	4,388.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
8,200.0	0.00	0.00	8,200.0	4,488.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
8,300.0	0.00	0.00	8,300.0	4,588.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
8,400.0	0.00	0.00	8,400.0	4,688.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
8,500.0	0.00	0.00	8,500.0	4,788.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
8,546.5	0.00	0.00	8,546.5	4,835.0	0.0	0.0	0.0	0.00	565,541.99	799,941.47		
Bone Spring/ Glorietta												

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State 4H
Project:	East Marathon Road	TVD Reference:	WELL @ 3711.5usft (Original Well Elev)
Site:	Igloo 19 State 4H	MD Reference:	WELL @ 3711.5usft (Original Well Elev)
Well:	Igloo 19 State 4H	North Reference:	Grid
Wellbore:	Igloo 19 State 4H	Survey Calculation Method:	Minimum Curvature
Design:	160726 Igloo 19 State 4H	Database:	EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
8,600.0	0.00	0.00	8,600.0	4,888.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
8,700.0	0.00	0.00	8,700.0	4,988.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
8,800.0	0.00	0.00	8,800.0	5,088.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
8,900.0	0.00	0.00	8,900.0	5,188.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,000.0	0.00	0.00	9,000.0	5,288.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,100.0	0.00	0.00	9,100.0	5,388.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,200.0	0.00	0.00	9,200.0	5,488.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,300.0	0.00	0.00	9,300.0	5,588.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,400.0	0.00	0.00	9,400.0	5,688.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,500.0	0.00	0.00	9,500.0	5,788.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,600.0	0.00	0.00	9,600.0	5,888.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,700.0	0.00	0.00	9,700.0	5,988.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,726.5	0.00	0.00	9,726.5	6,015.0	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
1st Bone Spring Sand											
9,800.0	0.00	0.00	9,800.0	6,088.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
9,900.0	0.00	0.00	9,900.0	6,188.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
10,000.0	0.00	0.00	10,000.0	6,288.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
10,085.0	0.00	355.36	10,085.0	6,373.5	0.0	0.0	0.0	0.00	565,541.99	799,941.47	
10,100.0	1.49	355.36	10,100.0	6,388.5	0.2	0.0	0.2	9.94	565,542.18	799,941.45	
10,200.0	11.43	355.36	10,199.2	6,487.7	11.4	-0.9	11.4	9.94	565,553.38	799,940.54	
10,300.0	21.37	355.36	10,295.1	6,583.6	39.5	-3.2	39.6	9.94	565,581.49	799,938.26	
10,400.0	31.31	355.36	10,384.6	6,673.1	83.7	-6.8	83.9	9.94	565,625.65	799,934.68	
10,470.6	38.33	355.36	10,442.5	6,731.0	123.8	-10.1	124.2	9.94	565,665.82	799,931.42	
2nd Bone Spring Sand											
10,500.0	41.25	355.36	10,465.1	6,753.6	142.6	-11.6	143.0	9.94	565,684.55	799,929.90	
10,600.0	51.18	355.36	10,534.2	6,822.7	214.4	-17.4	215.1	9.94	565,756.42	799,924.06	
10,700.0	61.12	355.36	10,589.8	6,878.3	297.1	-24.1	298.1	9.94	565,839.10	799,917.35	

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State 4H
Project:	East Marathon Road	TVD Reference:	WELL @ 3711.5usft (Original Well Elev)
Site:	Igloo 19 State 4H	MD Reference:	WELL @ 3711.5usft (Original Well Elev)
Well:	Igloo 19 State 4H	North Reference:	Grid
Wellbore:	Igloo 19 State 4H	Survey Calculation Method:	Minimum Curvature
Design:	160726 Igloo 19 State 4H	Database:	EDM 5000.1 Single User Db

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
10,800.0	71.06	355.36	10,630.3	6,918.8	388.1	-31.5	389.4	9.94	565,930.10	799,909.97
10,900.0	81.00	355.36	10,654.4	6,942.9	484.7	-39.3	486.3	9.94	566,026.71	799,902.13
10,983.0	89.25	355.36	10,661.4	6,949.9	567.1	-46.0	568.9	9.94	566,109.07	799,895.44
11,000.0	89.25	355.36	10,661.7	6,950.2	584.0	-47.4	585.9	0.00	566,126.01	799,894.07
11,100.0	89.25	355.36	10,663.0	6,951.5	683.7	-55.5	685.9	0.00	566,225.67	799,885.98
11,200.0	89.25	355.36	10,664.3	6,952.8	783.3	-63.6	785.9	0.00	566,325.34	799,877.89
11,300.0	89.25	355.36	10,665.6	6,954.1	883.0	-71.7	885.9	0.00	566,425.00	799,869.80
11,400.0	89.25	355.36	10,666.9	6,955.4	982.7	-79.8	985.9	0.00	566,524.66	799,861.71
11,500.0	89.25	355.36	10,668.2	6,956.7	1,082.3	-87.8	1,085.9	0.00	566,624.33	799,853.62
11,600.0	89.25	355.36	10,669.5	6,958.0	1,182.0	-95.9	1,185.9	0.00	566,723.99	799,845.53
11,700.0	89.25	355.36	10,670.8	6,959.3	1,281.7	-104.0	1,285.9	0.00	566,823.65	799,837.45
11,800.0	89.25	355.36	10,672.1	6,960.6	1,381.3	-112.1	1,385.9	0.00	566,923.32	799,829.36
11,900.0	89.25	355.36	10,673.4	6,961.9	1,481.0	-120.2	1,485.9	0.00	567,022.98	799,821.27
12,000.0	89.25	355.36	10,674.8	6,963.3	1,580.7	-128.3	1,585.9	0.00	567,122.65	799,813.18
12,100.0	89.25	355.36	10,676.1	6,964.6	1,680.3	-136.4	1,685.8	0.00	567,222.31	799,805.09
12,200.0	89.25	355.36	10,677.4	6,965.9	1,780.0	-144.5	1,785.8	0.00	567,321.97	799,797.00
12,300.0	89.25	355.36	10,678.7	6,967.2	1,879.6	-152.6	1,885.8	0.00	567,421.64	799,788.91
12,400.0	89.25	355.36	10,680.0	6,968.5	1,979.3	-160.6	1,985.8	0.00	567,521.30	799,780.82
12,500.0	89.25	355.36	10,681.3	6,969.8	2,079.0	-168.7	2,085.8	0.00	567,620.96	799,772.74
12,600.0	89.25	355.36	10,682.6	6,971.1	2,178.6	-176.8	2,185.8	0.00	567,720.63	799,764.65
12,700.0	89.25	355.36	10,683.9	6,972.4	2,278.3	-184.9	2,285.8	0.00	567,820.29	799,756.56
12,800.0	89.25	355.36	10,685.2	6,973.7	2,378.0	-193.0	2,385.8	0.00	567,919.96	799,748.47
12,900.0	89.25	355.36	10,686.5	6,975.0	2,477.6	-201.1	2,485.8	0.00	568,019.62	799,740.38
13,000.0	89.25	355.36	10,687.8	6,976.3	2,577.3	-209.2	2,585.8	0.00	568,119.28	799,732.29
13,100.0	89.25	355.36	10,689.1	6,977.6	2,677.0	-217.3	2,685.8	0.00	568,218.95	799,724.20
13,200.0	89.25	355.36	10,690.5	6,979.0	2,776.6	-225.4	2,785.8	0.00	568,318.61	799,716.11
13,300.0	89.25	355.36	10,691.8	6,980.3	2,876.3	-233.4	2,885.7	0.00	568,418.27	799,708.03

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State 4H
Project:	East Marathon Road	TVD Reference:	WELL @ 3711.5usft (Original Well Elev)
Site:	Igloo 19 State 4H	MD Reference:	WELL @ 3711.5usft (Original Well Elev)
Well:	Igloo 19 State 4H	North Reference:	Grid
Wellbore:	Igloo 19 State 4H	Survey Calculation Method:	Minimum Curvature
Design:	160726 Igloo 19 State 4H	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
13,400.0	89.25	355.36	10,693.1	6,981.6	2,976.0	-241.5	2,985.7	0.00	568,517.94	799,699.94
13,500.0	89.25	355.36	10,694.4	6,982.9	3,075.6	-249.6	3,085.7	0.00	568,617.60	799,691.85
13,600.0	89.25	355.36	10,695.7	6,984.2	3,175.3	-257.7	3,185.7	0.00	568,717.27	799,683.76
13,700.0	89.25	355.36	10,697.0	6,985.5	3,274.9	-265.8	3,285.7	0.00	568,816.93	799,675.67
13,800.0	89.25	355.36	10,698.3	6,986.8	3,374.6	-273.9	3,385.7	0.00	568,916.59	799,667.58
13,900.0	89.25	355.36	10,699.6	6,988.1	3,474.3	-282.0	3,485.7	0.00	569,016.26	799,659.49
14,000.0	89.25	355.36	10,700.9	6,989.4	3,573.9	-290.1	3,585.7	0.00	569,115.92	799,651.40
14,100.0	89.25	355.36	10,702.2	6,990.7	3,673.6	-298.2	3,685.7	0.00	569,215.58	799,643.31
14,200.0	89.25	355.36	10,703.5	6,992.0	3,773.3	-306.2	3,785.7	0.00	569,315.25	799,635.23
14,300.0	89.25	355.36	10,704.9	6,993.4	3,872.9	-314.3	3,885.7	0.00	569,414.91	799,627.14
14,400.0	89.25	355.36	10,706.2	6,994.7	3,972.6	-322.4	3,985.6	0.00	569,514.57	799,619.05
14,500.0	89.25	355.36	10,707.5	6,996.0	4,072.3	-330.5	4,085.6	0.00	569,614.24	799,610.96
14,600.0	89.25	355.36	10,708.8	6,997.3	4,171.9	-338.6	4,185.6	0.00	569,713.90	799,602.87
14,700.0	89.25	355.36	10,710.1	6,998.6	4,271.6	-346.7	4,285.6	0.00	569,813.57	799,594.78
14,800.0	89.25	355.36	10,711.4	6,999.9	4,371.2	-354.8	4,385.6	0.00	569,913.23	799,586.69
14,900.0	89.25	355.36	10,712.7	7,001.2	4,470.9	-362.9	4,485.6	0.00	570,012.89	799,578.60
15,000.0	89.25	355.36	10,714.0	7,002.5	4,570.6	-371.0	4,585.6	0.00	570,112.56	799,570.52
15,100.0	89.25	355.36	10,715.3	7,003.8	4,670.2	-379.0	4,685.6	0.00	570,212.22	799,562.43
15,178.0	89.25	355.36	10,716.4	7,004.9	4,748.0	-385.3	4,763.6	0.00	570,289.96	799,556.12

5 1/2" Production Casing

MOJO Standard Plan

Company:	Caza Oil and Gas	Local Co-ordinate Reference:	Site Igloo 19 State 4H
Project:	East Marathon Road	TVD Reference:	WELL @ 3711.5usft (Original Well Elev)
Site:	Igloo 19 State 4H	MD Reference:	WELL @ 3711.5usft (Original Well Elev)
Well:	Igloo 19 State 4H	North Reference:	Grid
Wellbore:	Igloo 19 State 4H	Survey Calculation Method:	Minimum Curvature
Design:	160726 Igloo 19 State 4H	Database:	EDM 5000.1 Single User Db

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
120.0	120.0	20" Conductor	20	26	
1,895.0	1,895.0	13 - 3/8" Surface Casing	13-3/8	17-1/2	
5,885.0	5,885.0	12.25" Intermediate Casing	9-5/8	12-1/4	
15,178.0	10,716.4	5 1/2" Production Casing	5-1/2	8-3/4	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,866.5	1,866.5	Rustler		0.00	
3,506.5	3,506.5	Base of Salt		0.00	
5,961.5	5,961.5	Cherry Canyon		0.00	
2,076.5	2,076.5	Top of Salt		0.00	
9,726.5	9,726.5	1st Bone Spring Sand		0.00	
6,786.5	6,786.5	Brushy Canyon		0.00	
10,470.6	10,442.5	2nd Bone Spring Sand		0.00	
4,161.5	4,161.5	Capitan Reef		0.00	
8,546.5	8,546.5	Bone Spring/ Glorietta		0.00	
3,736.5	3,736.5	Yates		0.00	

Checked By:	Approved By:	Date:
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