



Caza Operating LLC

Igloo 19-24 State Fed Com 14H

Igloo 19-24 State Fed Com 14H

Igloo 19-24 State Fed Com 14H

Igloo 19-24 State Fed Com 14H

Survey: Igloo 19-24 State Fed Com 14Y

Morcor Standard Plan

15 April, 2020

These surveys are true and accurate to the best of my knowledge.

A handwritten signature in black ink, appearing to read 'Steve Morris'.

Steve Morris

Company:	Caza Operating LLC				Local Co-ordinate Reference:	Well Igloo 19-24 State Fed Com 14H	
Project:	Igloo 19-24 State Fed Com 14H				TVD Reference:	WELL @ 3715.0usft (Original Well Elev)	
Site:	Igloo 19-24 State Fed Com 14H				MD Reference:	WELL @ 3715.0usft (Original Well Elev)	
Well:	Igloo 19-24 State Fed Com 14H				North Reference:	Grid	
Wellbore:	Igloo 19-24 State Fed Com 14H				Survey Calculation Method:	Minimum Curvature	
Design:	Igloo 19-24 State Fed Com 14Y				Database:	EDM 5000.1 Single User Db	

Project	Igloo 19-24 State Fed Com 14H						
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 19-24 State Fed Com 14H						
Site Position:			Northing:	566,651.47 usft	Latitude:	32° 33' 17.967 N	
From:	Map		Easting:	799,417.10 usft	Longitude:	103° 29' 44.572 W	
Position Uncertainty:	1.0 usft		Slot Radius:	17-1/2 "	Grid Convergence:	0.45 °	

Well	Igloo 19-24 State Fed Com 14H						
Well Position	+N/-S	0.0 usft	Northing:	566,651.47 usft	Latitude:	32° 33' 17.967 N	
	+E/-W	0.0 usft	Easting:	799,417.10 usft	Longitude:	103° 29' 44.572 W	
Position Uncertainty	1.0 usft		Wellhead Elevation:	usft	Ground Level:	3,694.0 usft	

Wellbore	Igloo 19-24 State Fed Com 14H						
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)		
	IGRF2010	8/26/2019	6.55	60.29	47,999		

Design	Igloo 19-24 State Fed Com 14Y						
Audit Notes:							
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0		
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)			
	0.0	0.0	0.0	263.53			

Survey Program	Date	4/14/2020				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description		
96.1	18,080.0	Igloo 19-24 State Fed Com 14Y (Igloo 19-	MWD	MWD - Standard		

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0.0	0.00	0.00	0.0	-3,715.0	0.0	0.0	799,417.10	566,651.47	0.00	0.00
96.1	0.26	79.70	96.1	-3,618.9	0.0	0.2	799,417.31	566,651.51	-0.22	0.27
188.2	0.68	47.88	188.2	-3,526.8	0.4	0.8	799,417.93	566,651.91	-0.87	0.52
280.3	0.78	63.45	280.3	-3,434.7	1.1	1.8	799,418.89	566,652.56	-1.90	0.24
372.4	0.74	53.93	372.4	-3,342.6	1.7	2.8	799,419.93	566,653.19	-3.01	0.14
464.5	0.76	35.22	464.5	-3,250.5	2.6	3.7	799,420.77	566,654.04	-3.93	0.27
556.6	0.56	17.09	556.6	-3,158.4	3.5	4.2	799,421.25	566,654.97	-4.52	0.31
648.7	0.68	15.13	648.7	-3,066.3	4.5	4.4	799,421.53	566,655.93	-4.90	0.13
740.8	0.89	11.95	740.8	-2,974.2	5.7	4.7	799,421.82	566,657.15	-5.33	0.23
832.9	1.00	13.02	832.8	-2,882.2	7.2	5.0	799,422.15	566,658.64	-5.82	0.12
925.0	1.16	9.84	924.9	-2,790.1	8.9	5.4	799,422.49	566,660.34	-6.35	0.19
1,017.1	1.35	13.71	1,017.0	-2,698.0	10.8	5.8	799,422.90	566,662.31	-6.99	0.23
1,109.2	1.12	9.14	1,109.1	-2,605.9	12.8	6.2	799,423.30	566,664.25	-7.60	0.27
1,201.3	1.12	16.23	1,201.2	-2,513.8	14.5	6.6	799,423.70	566,666.01	-8.19	0.15
1,293.4	1.52	22.41	1,293.2	-2,421.8	16.5	7.3	799,424.41	566,668.00	-9.13	0.46
1,385.5	1.29	18.43	1,385.3	-2,329.7	18.6	8.1	799,425.21	566,670.11	-10.16	0.27
1,477.6	1.39	16.04	1,477.4	-2,237.6	20.7	8.7	799,425.84	566,672.17	-11.02	0.12
1,569.7	1.68	7.06	1,569.5	-2,145.5	23.1	9.2	799,426.32	566,674.58	-11.76	0.41
1,661.8	1.49	14.48	1,661.5	-2,053.5	25.6	9.7	799,426.78	566,677.08	-12.51	0.30
1,753.9	1.26	14.81	1,753.6	-1,961.4	27.8	10.2	799,427.34	566,679.22	-13.30	0.25
1,846.0	1.34	13.86	1,845.7	-1,869.3	29.8	10.8	799,427.86	566,681.25	-14.05	0.09
1,915.0	1.60	14.00	1,914.6	-1,800.4	31.5	11.2	799,428.29	566,682.96	-14.66	0.38
2,009.0	2.40	18.00	2,008.6	-1,706.4	34.6	12.1	799,429.21	566,686.11	-15.94	0.86
2,103.0	3.70	24.00	2,102.5	-1,612.5	39.3	14.0	799,431.05	566,690.75	-18.29	1.42
2,197.0	5.00	20.00	2,196.2	-1,518.8	45.9	16.6	799,433.69	566,697.37	-21.65	1.42
2,291.0	6.10	26.00	2,289.7	-1,425.3	54.2	20.2	799,437.28	566,705.71	-26.16	1.32
2,385.0	7.30	21.00	2,383.1	-1,331.9	64.3	24.5	799,441.61	566,715.77	-31.60	1.42

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Survey										
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2,479.0	8.60	21.00	2,476.2	-1,238.8	76.4	29.2	799,446.27	566,727.91	-37.59	1.38
2,573.0	10.30	24.00	2,568.9	-1,146.1	90.7	35.1	799,452.20	566,742.15	-45.10	1.88
2,602.0	11.18	25.70	2,597.4	-1,117.6	95.6	37.4	799,454.48	566,747.05	-47.91	3.22
2,696.0	12.84	26.82	2,689.3	-1,025.7	113.1	46.0	799,463.14	566,764.59	-58.50	1.78
2,790.0	11.67	25.86	2,781.2	-933.8	131.0	54.9	799,472.00	566,782.46	-69.31	1.26
2,883.0	10.56	26.47	2,872.5	-842.5	147.1	62.8	799,479.90	566,798.56	-78.98	1.20
2,978.0	9.80	26.88	2,966.0	-749.0	162.1	70.3	799,487.44	566,813.56	-88.16	0.80
3,071.0	8.59	26.93	3,057.8	-657.2	175.3	77.1	799,494.16	566,826.81	-96.33	1.30
3,166.0	6.92	32.11	3,151.9	-563.1	186.5	83.3	799,500.42	566,837.99	-103.80	1.90
3,260.0	5.82	37.04	3,245.3	-469.7	195.1	89.2	799,506.30	566,846.59	-110.62	1.31
3,353.0	5.11	42.06	3,337.9	-377.1	202.0	94.8	799,511.91	566,853.43	-116.97	0.92
3,447.0	4.25	43.25	3,431.6	-283.4	207.6	100.0	799,517.11	566,859.07	-122.76	0.92
3,542.0	3.92	39.48	3,526.3	-188.7	212.7	104.5	799,521.58	566,864.14	-127.78	0.45
3,636.0	3.67	62.54	3,620.1	-94.9	216.5	109.2	799,526.29	566,868.01	-132.90	1.63
3,729.0	5.33	119.17	3,712.9	-2.1	215.8	115.6	799,532.71	566,867.28	-139.19	4.85
3,823.0	5.80	156.61	3,806.5	91.5	209.3	121.3	799,538.41	566,860.79	-144.12	3.82
3,917.0	5.77	183.49	3,900.0	185.0	200.2	122.9	799,540.01	566,851.71	-144.69	2.86
4,012.0	5.80	184.27	3,994.5	279.5	190.7	122.3	799,539.36	566,842.16	-142.97	0.09
4,106.0	5.95	182.92	4,088.0	373.0	181.1	121.7	799,538.76	566,832.56	-141.29	0.22
4,200.0	5.91	182.42	4,181.5	466.5	171.4	121.2	799,538.31	566,822.86	-139.75	0.07
4,294.0	6.52	182.02	4,275.0	560.0	161.2	120.8	799,537.91	566,812.69	-138.21	0.65
4,389.0	7.70	179.06	4,369.2	654.2	149.5	120.7	799,537.83	566,800.93	-136.80	1.30
4,484.0	7.96	181.00	4,463.4	748.4	136.5	120.7	799,537.82	566,787.99	-135.33	0.39
4,578.0	8.56	181.90	4,556.4	841.4	123.0	120.4	799,537.47	566,774.49	-133.47	0.65
4,672.0	9.97	181.14	4,649.2	934.2	107.9	120.0	799,537.08	566,759.36	-131.37	1.51
4,766.0	9.34	185.11	4,741.8	1,026.8	92.2	119.1	799,536.24	566,743.63	-128.76	0.97
4,861.0	10.11	183.93	4,835.5	1,120.5	76.2	117.9	799,534.98	566,727.63	-125.71	0.84

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4,956.0	10.88	180.74	4,928.9	1,213.9	58.9	117.2	799,534.29	566,710.35	-123.08	1.02	
5,051.0	11.90	180.50	5,022.0	1,307.0	40.1	117.0	799,534.09	566,691.59	-120.77	1.07	
5,144.0	12.58	181.51	5,112.9	1,397.9	20.4	116.6	799,533.74	566,671.88	-118.20	0.77	
5,226.0	12.81	181.56	5,192.9	1,477.9	2.4	116.2	799,533.26	566,653.86	-115.69	0.28	
5,302.0	13.62	179.75	5,266.9	1,551.9	-15.0	116.0	799,533.07	566,636.49	-113.54	1.20	
5,396.0	14.07	180.67	5,358.1	1,643.1	-37.5	115.9	799,532.98	566,614.00	-110.92	0.53	
5,490.0	14.41	181.70	5,449.2	1,734.2	-60.6	115.4	799,532.50	566,590.88	-107.84	0.45	
5,585.0	14.88	182.12	5,541.2	1,826.2	-84.6	114.6	799,531.70	566,566.88	-104.34	0.51	
5,679.0	15.22	182.50	5,631.9	1,916.9	-109.0	113.6	799,530.72	566,542.49	-100.61	0.38	
5,773.0	15.80	182.49	5,722.5	2,007.5	-134.1	112.5	799,529.62	566,517.38	-96.70	0.62	
5,868.0	15.91	182.50	5,813.9	2,098.9	-160.0	111.4	799,528.49	566,491.45	-92.65	0.12	
5,963.0	16.31	183.18	5,905.2	2,190.2	-186.4	110.1	799,527.19	566,465.12	-88.39	0.47	
6,056.0	16.84	183.87	5,994.3	2,279.3	-212.8	108.5	799,525.55	566,438.64	-83.78	0.61	
6,151.0	17.45	183.39	6,085.1	2,370.1	-240.8	106.7	799,523.78	566,410.69	-78.87	0.66	
6,245.0	17.95	182.94	6,174.6	2,459.6	-269.3	105.1	799,522.20	566,382.16	-74.09	0.55	
6,339.0	17.81	181.75	6,264.1	2,549.1	-298.1	103.9	799,521.02	566,353.32	-69.66	0.42	
6,434.0	16.61	177.78	6,354.8	2,639.8	-326.2	104.0	799,521.11	566,325.23	-66.58	1.77	
6,528.0	16.28	171.80	6,445.0	2,730.0	-352.7	106.4	799,523.51	566,298.76	-65.98	1.83	
6,622.0	16.78	168.08	6,535.1	2,820.1	-379.0	111.1	799,528.19	566,272.44	-67.67	1.25	
6,717.0	16.51	167.80	6,626.1	2,911.1	-405.6	116.8	799,533.87	566,245.83	-70.32	0.30	
6,812.0	16.08	168.42	6,717.3	3,002.3	-431.7	122.3	799,539.37	566,219.75	-72.84	0.49	
6,906.0	16.06	169.14	6,807.6	3,092.6	-457.2	127.3	799,544.43	566,194.23	-75.00	0.21	
7,000.0	16.46	168.78	6,897.9	3,182.9	-483.1	132.4	799,549.47	566,168.40	-77.09	0.44	
7,094.0	16.54	168.42	6,988.0	3,273.0	-509.2	137.6	799,554.75	566,142.22	-79.39	0.14	
7,189.0	16.65	168.27	7,079.1	3,364.1	-535.8	143.1	799,560.23	566,115.65	-81.84	0.12	
7,284.0	16.97	168.51	7,170.0	3,455.0	-562.7	148.7	799,565.76	566,088.74	-84.30	0.34	
7,378.0	17.12	169.54	7,259.9	3,544.9	-589.8	153.9	799,571.00	566,061.69	-86.47	0.36	

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7,472.0	17.37	168.86	7,349.6	3,634.6	-617.2	159.1	799,576.23	566,034.32	-88.57	0.34	
7,567.0	17.20	168.45	7,440.3	3,725.3	-644.8	164.7	799,581.78	566,006.64	-90.97	0.22	
7,661.0	15.41	168.47	7,530.6	3,815.6	-670.7	170.0	799,587.06	565,980.79	-93.30	1.90	
7,754.0	13.70	173.09	7,620.6	3,905.6	-693.7	173.8	799,590.85	565,957.75	-94.48	2.22	
7,848.0	11.96	172.64	7,712.2	3,997.2	-714.4	176.3	799,593.44	565,937.03	-94.71	1.85	
7,943.0	11.68	172.30	7,805.2	4,090.2	-733.7	178.9	799,595.99	565,917.74	-95.07	0.30	
8,037.0	11.43	174.30	7,897.3	4,182.3	-752.4	181.1	799,598.19	565,899.04	-95.15	0.50	
8,130.0	11.29	173.84	7,988.5	4,273.5	-770.6	183.0	799,600.08	565,880.82	-94.98	0.18	
8,225.0	10.01	172.89	8,081.8	4,366.8	-788.1	185.0	799,602.10	565,863.39	-95.02	1.36	
8,320.0	9.06	174.45	8,175.5	4,460.5	-803.7	186.7	799,603.85	565,847.75	-94.99	1.04	
8,414.0	8.22	173.44	8,268.5	4,553.5	-817.8	188.2	799,605.33	565,833.70	-94.89	0.91	
8,506.0	6.21	173.45	8,359.7	4,644.7	-829.2	189.6	799,606.65	565,822.23	-94.90	2.18	
8,600.0	5.09	183.90	8,453.3	4,738.3	-838.5	189.8	799,606.95	565,813.01	-94.16	1.61	
8,694.0	2.92	191.43	8,547.0	4,832.0	-845.0	189.1	799,606.19	565,806.51	-92.67	2.37	
8,788.0	1.17	199.29	8,641.0	4,926.0	-848.2	188.3	799,605.40	565,803.25	-91.52	1.88	
8,882.0	0.26	211.73	8,735.0	5,020.0	-849.3	187.9	799,604.97	565,802.17	-90.97	0.98	
8,976.0	0.61	230.95	8,829.0	5,114.0	-849.8	187.4	799,604.47	565,801.67	-90.42	0.40	
9,070.0	0.61	231.62	8,923.0	5,208.0	-850.4	186.6	799,603.69	565,801.04	-89.57	0.01	
9,164.0	0.50	261.40	9,017.0	5,302.0	-850.8	185.8	799,602.89	565,800.67	-88.74	0.32	
9,259.0	0.79	237.15	9,112.0	5,397.0	-851.2	184.8	799,601.93	565,800.26	-87.74	0.41	
9,353.0	0.53	243.21	9,205.9	5,490.9	-851.8	183.9	799,601.00	565,799.71	-86.75	0.29	
9,424.0	0.69	220.83	9,276.9	5,561.9	-852.2	183.3	799,600.42	565,799.24	-86.12	0.40	
9,458.0	0.81	243.62	9,310.9	5,595.9	-852.5	183.0	799,600.08	565,798.97	-85.75	0.94	
9,505.0	4.08	262.68	9,357.9	5,642.9	-852.9	181.0	799,598.12	565,798.61	-83.76	7.07	
9,553.0	10.02	270.29	9,405.5	5,690.5	-853.1	175.1	799,592.24	565,798.42	-77.90	12.50	
9,600.0	16.90	271.49	9,451.2	5,736.2	-852.9	164.2	799,581.31	565,798.62	-67.06	14.65	
9,647.0	23.29	270.71	9,495.3	5,780.3	-852.6	148.1	799,565.18	565,798.91	-51.06	13.61	

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Igloo 19-24 State Fed Com 14H
Project:	Igloo 19-24 State Fed Com 14H	TVD Reference:	WELL @ 3715.0usft (Original Well Elev)
Site:	Igloo 19-24 State Fed Com 14H	MD Reference:	WELL @ 3715.0usft (Original Well Elev)
Well:	Igloo 19-24 State Fed Com 14H	North Reference:	Grid
Wellbore:	Igloo 19-24 State Fed Com 14H	Survey Calculation Method:	Minimum Curvature
Design:	Igloo 19-24 State Fed Com 14Y	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
9,694.0	29.12	268.67	9,537.5	5,822.5	-852.7	127.3	799,544.43	565,798.76	-30.44	12.55
9,741.0	31.27	267.51	9,578.1	5,863.1	-853.5	103.7	799,520.81	565,797.96	-6.88	4.74
9,788.0	32.71	265.01	9,617.9	5,902.9	-855.1	78.9	799,495.97	565,796.33	17.99	4.16
9,834.0	37.43	265.92	9,655.6	5,940.6	-857.2	52.5	799,469.63	565,794.25	44.40	10.32
9,881.0	42.32	267.44	9,691.6	5,976.6	-858.9	22.5	799,439.56	565,792.53	74.47	10.61
9,928.0	45.97	268.03	9,725.4	6,010.4	-860.2	-10.2	799,406.86	565,791.24	107.11	7.81
9,975.0	49.81	268.20	9,756.9	6,041.9	-861.4	-45.1	799,372.01	565,790.09	141.86	8.17
10,023.0	55.93	269.27	9,785.8	6,070.8	-862.2	-83.3	799,333.77	565,789.26	179.95	12.87
10,070.0	61.20	271.71	9,810.3	6,095.3	-861.8	-123.4	799,293.69	565,789.63	219.74	12.05
10,117.0	64.92	271.98	9,831.6	6,116.6	-860.5	-165.3	799,251.82	565,790.98	261.19	7.93
10,164.0	67.50	272.09	9,850.6	6,135.6	-859.0	-208.3	799,208.85	565,792.51	303.72	5.49
10,211.0	71.50	272.66	9,867.0	6,152.0	-857.1	-252.2	799,164.87	565,794.34	347.21	8.59
10,258.0	73.96	272.81	9,881.0	6,166.0	-855.0	-297.1	799,120.04	565,796.48	391.51	5.24
10,304.0	75.93	271.68	9,892.9	6,177.9	-853.3	-341.4	799,075.66	565,798.22	435.41	4.90
10,351.0	81.71	271.07	9,902.1	6,187.1	-852.2	-387.5	799,029.58	565,799.32	481.07	12.36
10,398.0	84.81	270.39	9,907.6	6,192.6	-851.6	-434.2	798,982.92	565,799.91	527.37	6.75
10,445.0	90.34	270.40	9,909.6	6,194.6	-851.2	-481.1	798,935.98	565,800.24	573.98	11.77
10,492.0	91.76	270.77	9,908.7	6,193.7	-850.8	-528.1	798,888.99	565,800.72	620.61	3.12
10,586.0	93.08	268.85	9,904.7	6,189.7	-851.1	-622.0	798,795.08	565,800.41	713.96	2.48
10,703.0	94.17	268.40	9,897.3	6,182.3	-853.9	-738.7	798,678.35	565,797.60	830.26	1.01
10,797.0	93.72	269.08	9,890.9	6,175.9	-855.9	-832.5	798,584.60	565,795.54	923.65	0.87
10,892.0	92.58	268.27	9,885.6	6,170.6	-858.1	-927.3	798,489.77	565,793.35	1,018.12	1.47
10,987.0	93.47	267.77	9,880.6	6,165.6	-861.4	-1,022.1	798,394.96	565,790.07	1,112.70	1.07
11,081.0	94.14	267.25	9,874.4	6,159.4	-865.5	-1,115.8	798,301.26	565,786.00	1,206.26	0.90
11,175.0	94.96	268.25	9,866.9	6,151.9	-869.2	-1,209.5	798,207.63	565,782.32	1,299.71	1.37
11,269.0	95.78	268.39	9,858.1	6,143.1	-871.9	-1,303.0	798,114.08	565,779.57	1,392.97	0.88
11,364.0	96.48	267.67	9,848.0	6,133.0	-875.1	-1,397.4	798,019.68	565,776.33	1,487.13	1.05

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Igloo 19-24 State Fed Com 14H
Project:	Igloo 19-24 State Fed Com 14H	TVD Reference:	WELL @ 3715.0usft (Original Well Elev)
Site:	Igloo 19-24 State Fed Com 14H	MD Reference:	WELL @ 3715.0usft (Original Well Elev)
Well:	Igloo 19-24 State Fed Com 14H	North Reference:	Grid
Wellbore:	Igloo 19-24 State Fed Com 14H	Survey Calculation Method:	Minimum Curvature
Design:	Igloo 19-24 State Fed Com 14Y	Database:	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)
11,457.0	96.22	268.66	9,837.7	6,122.7	-878.1	-1,489.8	797,927.30	565,773.37	1,579.26	1.09
11,552.0	94.87	269.21	9,828.5	6,113.5	-879.9	-1,584.3	797,832.76	565,771.61	1,673.39	1.53
11,647.0	93.33	269.24	9,821.7	6,106.7	-881.1	-1,679.1	797,738.02	565,770.33	1,767.68	1.62
11,740.0	93.83	269.04	9,815.9	6,100.9	-882.5	-1,771.9	797,645.21	565,768.94	1,860.05	0.58
11,834.0	92.68	269.44	9,810.6	6,095.6	-883.8	-1,865.7	797,551.37	565,767.69	1,953.43	1.30
11,928.0	92.83	269.28	9,806.1	6,091.1	-884.8	-1,959.6	797,457.49	565,766.64	2,046.84	0.23
12,022.0	93.14	268.92	9,801.2	6,086.2	-886.3	-2,053.5	797,363.63	565,765.17	2,140.27	0.51
12,116.0	92.71	269.84	9,796.4	6,081.4	-887.3	-2,147.3	797,269.75	565,764.15	2,233.65	1.08
12,210.0	93.11	269.43	9,791.6	6,076.6	-887.9	-2,241.2	797,175.88	565,763.55	2,327.00	0.61
12,304.0	92.68	270.22	9,786.9	6,071.9	-888.2	-2,335.1	797,082.00	565,763.27	2,420.31	0.96
12,398.0	93.33	270.12	9,781.9	6,066.9	-887.9	-2,429.0	796,988.13	565,763.55	2,513.55	0.70
12,492.0	92.80	270.51	9,776.9	6,061.9	-887.4	-2,522.8	796,894.27	565,764.06	2,606.76	0.70
12,586.0	92.74	270.71	9,772.4	6,057.4	-886.4	-2,616.7	796,800.38	565,765.06	2,699.94	0.22
12,681.0	93.27	270.76	9,767.4	6,052.4	-885.2	-2,711.6	796,705.52	565,766.28	2,794.06	0.56
12,775.0	94.62	270.71	9,760.9	6,045.9	-884.0	-2,805.3	796,611.75	565,767.48	2,887.09	1.44
12,870.0	94.37	270.15	9,753.5	6,038.5	-883.3	-2,900.1	796,517.05	565,768.19	2,981.11	0.64
12,964.0	96.39	270.00	9,744.7	6,029.7	-883.2	-2,993.6	796,423.47	565,768.31	3,074.08	2.15
13,059.0	97.08	269.57	9,733.5	6,018.5	-883.5	-3,088.0	796,329.12	565,767.96	3,167.87	0.85
13,153.0	98.10	269.55	9,721.1	6,006.1	-884.2	-3,181.1	796,235.95	565,767.25	3,260.52	1.09
13,248.0	96.71	270.36	9,708.9	5,993.9	-884.3	-3,275.4	796,141.75	565,767.17	3,354.14	1.69
13,342.0	93.90	269.89	9,700.2	5,985.2	-884.1	-3,368.9	796,048.16	565,767.38	3,447.11	3.03
13,436.0	92.04	270.34	9,695.3	5,980.3	-883.9	-3,462.8	795,954.29	565,767.56	3,540.36	2.04
13,531.0	93.64	270.08	9,690.6	5,975.6	-883.6	-3,557.7	795,859.41	565,767.91	3,634.59	1.71
13,625.0	92.07	269.90	9,685.9	5,970.9	-883.6	-3,651.6	795,765.53	565,767.90	3,727.88	1.68
13,720.0	91.99	269.02	9,682.5	5,967.5	-884.5	-3,746.5	795,670.60	565,767.00	3,822.31	0.93
13,814.0	91.88	268.58	9,679.4	5,964.4	-886.4	-3,840.4	795,576.67	565,765.03	3,915.86	0.48
13,908.0	91.32	267.94	9,676.7	5,961.7	-889.3	-3,934.3	795,482.75	565,762.18	4,009.50	0.90

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Igloo 19-24 State Fed Com 14H
Project:	Igloo 19-24 State Fed Com 14H	TVD Reference:	WELL @ 3715.0usft (Original Well Elev)
Site:	Igloo 19-24 State Fed Com 14H	MD Reference:	WELL @ 3715.0usft (Original Well Elev)
Well:	Igloo 19-24 State Fed Com 14H	North Reference:	Grid
Wellbore:	Igloo 19-24 State Fed Com 14H	Survey Calculation Method:	Minimum Curvature
Design:	Igloo 19-24 State Fed Com 14Y	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)	
14,002.0	93.53	268.57	9,672.8	5,957.8	-892.1	-4,028.2	795,388.88	565,759.32	4,103.09	2.44	
14,097.0	93.89	268.48	9,666.6	5,951.6	-894.6	-4,123.0	795,294.12	565,756.88	4,197.53	0.39	
14,191.0	93.24	267.86	9,660.8	5,945.8	-897.6	-4,216.8	795,200.35	565,753.88	4,291.04	0.95	
14,285.0	93.33	267.39	9,655.4	5,940.4	-901.5	-4,310.5	795,106.58	565,750.00	4,384.65	0.51	
14,379.0	94.12	268.29	9,649.3	5,934.3	-905.0	-4,404.3	795,012.85	565,746.46	4,478.18	1.27	
14,474.0	94.93	267.92	9,641.8	5,926.8	-908.1	-4,498.9	794,918.20	565,743.33	4,572.58	0.94	
14,568.0	93.44	268.67	9,634.9	5,919.9	-910.9	-4,592.6	794,824.49	565,740.54	4,666.00	1.77	
14,663.0	91.15	269.67	9,631.1	5,916.1	-912.3	-4,687.5	794,729.59	565,739.16	4,760.46	2.63	
14,757.0	91.01	269.64	9,629.4	5,914.4	-912.9	-4,781.5	794,635.60	565,738.60	4,853.91	0.15	
14,852.0	91.54	271.12	9,627.2	5,912.2	-912.2	-4,876.5	794,540.63	565,739.23	4,948.20	1.65	
14,945.0	93.56	272.14	9,623.1	5,908.1	-909.6	-4,969.3	794,447.77	565,741.87	5,040.18	2.43	
15,040.0	93.92	271.52	9,616.9	5,901.9	-906.6	-5,064.1	794,353.02	565,744.90	5,133.98	0.75	
15,134.0	95.45	271.62	9,609.2	5,894.2	-904.0	-5,157.7	794,259.37	565,747.46	5,226.74	1.63	
15,227.0	93.42	270.76	9,602.0	5,887.0	-902.1	-5,250.4	794,166.68	565,749.39	5,318.63	2.37	
15,322.0	94.64	270.63	9,595.4	5,880.4	-900.9	-5,345.2	794,071.92	565,750.54	5,412.66	1.29	
15,415.0	95.75	270.37	9,586.9	5,871.9	-900.1	-5,437.8	793,979.31	565,751.35	5,504.59	1.23	
15,510.0	94.56	269.57	9,578.4	5,863.4	-900.2	-5,532.4	793,884.69	565,751.30	5,598.60	1.51	
15,603.0	92.74	269.27	9,572.5	5,857.5	-901.1	-5,625.2	793,791.89	565,750.36	5,690.92	1.98	
15,698.0	93.33	269.74	9,567.5	5,852.5	-901.9	-5,720.1	793,697.03	565,749.54	5,785.27	0.79	
15,793.0	94.73	270.21	9,560.8	5,845.8	-902.0	-5,814.8	793,602.27	565,749.50	5,879.44	1.55	
15,888.0	95.97	270.05	9,551.9	5,836.9	-901.8	-5,909.4	793,507.68	565,749.71	5,973.39	1.32	
15,982.0	96.10	269.78	9,542.0	5,827.0	-901.9	-6,002.9	793,414.20	565,749.57	6,066.29	0.32	
16,075.0	96.62	269.22	9,531.7	5,816.7	-902.7	-6,095.3	793,321.78	565,748.77	6,158.22	0.82	
16,170.0	94.91	269.14	9,522.2	5,807.2	-904.1	-6,189.8	793,227.27	565,747.41	6,252.28	1.80	
16,264.0	92.77	269.26	9,515.9	5,800.9	-905.4	-6,283.6	793,133.50	565,746.10	6,345.60	2.28	
16,358.0	90.75	269.58	9,513.0	5,798.0	-906.3	-6,377.5	793,039.55	565,745.15	6,439.05	2.18	
16,453.0	89.89	270.30	9,512.5	5,797.5	-906.4	-6,472.5	792,944.56	565,745.05	6,533.46	1.18	

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Igloo 19-24 State Fed Com 14H
Project:	Igloo 19-24 State Fed Com 14H	TVD Reference:	WELL @ 3715.0usft (Original Well Elev)
Site:	Igloo 19-24 State Fed Com 14H	MD Reference:	WELL @ 3715.0usft (Original Well Elev)
Well:	Igloo 19-24 State Fed Com 14H	North Reference:	Grid
Wellbore:	Igloo 19-24 State Fed Com 14H	Survey Calculation Method:	Minimum Curvature
Design:	Igloo 19-24 State Fed Com 14Y	Database:	EDM 5000.1 Single User Db

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)	
16,547.0	88.80	269.82	9,513.6	5,798.6	-906.3	-6,566.5	792,850.56	565,745.15	6,626.84	1.27	
16,640.0	87.04	270.08	9,516.9	5,801.9	-906.4	-6,659.5	792,757.63	565,745.07	6,719.19	1.91	
16,734.0	85.96	270.36	9,522.7	5,807.7	-906.0	-6,753.3	792,663.81	565,745.43	6,812.38	1.19	
16,829.0	84.72	270.28	9,530.4	5,815.4	-905.5	-6,848.0	792,569.12	565,745.96	6,906.40	1.31	
16,924.0	84.84	270.49	9,539.0	5,824.0	-904.9	-6,942.6	792,474.52	565,746.60	7,000.33	0.25	
17,019.0	86.72	270.17	9,546.0	5,831.0	-904.3	-7,037.3	792,379.78	565,747.14	7,094.40	2.01	
17,113.0	84.21	270.11	9,553.4	5,838.4	-904.1	-7,131.0	792,286.09	565,747.37	7,187.47	2.67	
17,206.0	83.74	269.96	9,563.2	5,848.2	-904.0	-7,223.5	792,193.60	565,747.43	7,279.36	0.53	
17,301.0	83.79	269.32	9,573.5	5,858.5	-904.6	-7,317.9	792,099.16	565,746.83	7,373.26	0.67	
17,395.0	83.93	268.59	9,583.6	5,868.6	-906.3	-7,411.4	792,005.72	565,745.13	7,466.31	0.79	
17,490.0	85.58	268.52	9,592.3	5,877.3	-908.7	-7,505.9	791,911.15	565,742.74	7,560.54	1.74	
17,584.0	85.60	267.99	9,599.5	5,884.5	-911.6	-7,599.6	791,817.47	565,739.89	7,653.94	0.56	
17,678.0	85.27	267.53	9,607.0	5,892.0	-915.2	-7,693.3	791,723.84	565,736.23	7,747.39	0.60	
17,773.0	85.02	267.09	9,615.0	5,900.0	-919.7	-7,787.8	791,629.29	565,731.78	7,841.84	0.53	
17,867.0	84.63	266.54	9,623.5	5,908.5	-924.9	-7,881.3	791,535.82	565,726.58	7,935.31	0.72	
17,962.0	85.03	266.05	9,632.1	5,917.1	-931.0	-7,975.7	791,441.40	565,720.47	8,029.81	0.66	
18,009.0	84.59	265.16	9,636.3	5,921.3	-934.6	-8,022.4	791,394.73	565,716.88	8,076.58	2.11	
18,080.0	84.59	265.16	9,643.0	5,928.0	-940.6	-8,092.8	791,324.30	565,710.92	8,147.24	0.00	

Checked By: _____	Approved By: _____	Date: _____
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