

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

NM OIL CONSERVATION
ARTESIA DISTRICT

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

RECEIVED

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-44621	Pool Code 98220	Pool Name Purple Sage Wolfcamp
Property Code 320546	Property Name FOREHAND RANCH NORTH 22-21 STATE	Well Number 2H
OGRID No. 249099	Operator Name CAZA OPERATING, LLC	Elevation 3140'

Surface Location

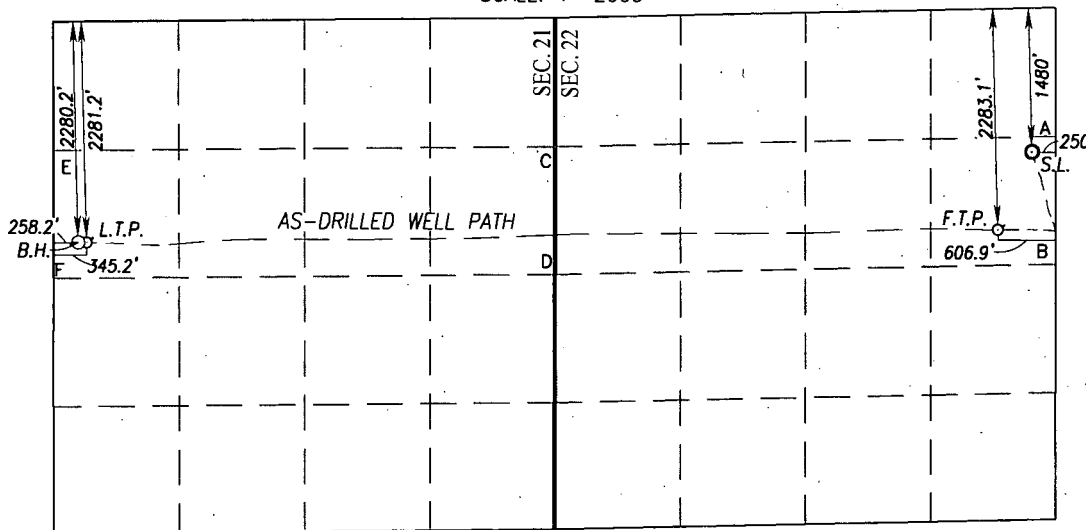
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	22	23-S	27-E		1480	NORTH	250	EAST	EDDY

AS-Drilled Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	21	23-S	27-E		2280.2	NORTH	258.2	WEST	EDDY
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

SCALE: 1"=2000'



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature
Steve Morris
Date
10/8/2019

Printed Name
steve.morris@morcoreengineering.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge.

Date of Survey
Signature
3239
Registered Professional Surveyor

Certificate Number
Gary G. Eidson 12641
Ronald J. Eidson 3239
JWSC W.O.: 19.13.0854

NOTE: AS-DRILLED BOTTOM HOLE AND TAKE POINTS PLOTTED FROM DATA FURNISHED BY SCHLUMBERGER ON JULY 25, 2019

GEODETIC COORDINATES
NAD 27 NME
SURFACE LOCATION
Y= 470637.1 N
X= 550535.5 E
LAT.=32.293792° N
LONG.=104.169789° W

GEODETIC COORDINATES
NAD 83 NME
SURFACE LOCATION
Y= 470695.9 N
X= 591717.9 E
LAT.=32.293911° N
LONG.=104.170287° W

CORNER COORDINATES TABLE

NAD 27 NME
A - Y= 470796.6 N, X= 550785.6 E
B - Y= 469470.1 N, X= 550784.5 E
C - Y= 470675.2 N, X= 545534.6 E
D - Y= 469349.9 N, X= 545531.7 E
E - Y= 470621.0 N, X= 540256.4 E
F - Y= 469294.6 N, X= 540259.8 E

BOTTOM HOLE LOCATION
NAD 27 NME
Y= 469670.3 N
X= 540517.0 E
LAT.=32.291172° N
LONG.=104.202215° W

BOTTOM HOLE LOCATION
NAD 83 NME
Y= 469729.0 N
X= 581699.2 E
LAT.=32.291291° N
LONG.=104.202715° W

CORNER COORDINATES TABLE

NAD 83 NME
A - Y= 470855.4 N, X= 591968.0 E
B - Y= 469528.9 N, X= 591966.9 E
C - Y= 470734.0 N, X= 586716.9 E
D - Y= 469408.6 N, X= 586714.0 E
E - Y= 470679.7 N, X= 581438.6 E
F - Y= 469353.3 N, X= 581442.0 E

LAST TAKE POINT
NAD 27 NME
Y= 469670.2 N
X= 540604.0 E
LAT.=32.291172° N
LONG.=104.201934° W

LAST TAKE POINT
NAD 83 NME
Y= 469728.9 N
X= 581786.2 E
LAT.=32.291291° N
LONG.=104.202433° W

FIRST TAKE POINT
NAD 27 NME
Y= 469825.7 N
X= 550178.1 E
LAT.=32.291563° N
LONG.=104.170950° W

FIRST TAKE POINT
NAD 83 NME
Y= 469884.5 N
X= 591360.5 E
LAT.=32.291683° N
LONG.=104.171448° W



**Caza
Petroleum**

NM OIL CONSERVATION
ARTESIA DISTRICT

OCT 09 2019

RECEIVED

Caza Operating LLC

Forehand Ranch North 22-21 State Com 2H

Forehand Ranch North 22-21 State Com 2H

Forehand Ranch North 22-21 State Com 2H

Forehand Ranch North 22-21 State Com 2H

Survey: Forehand Ranch North 22-21 State Com 2H

Morcor Standard Plan

15 August, 2019

Company:	Caza Operating LLC	Local Co-ordinate Reference:	Well Forehand Ranch North 22-21 State Com 2H
Project:	Forehand Ranch North 22-21 State Com 2H	TVD Reference:	WELL @ 3162.0usft (Original Well Elev)
Site:	Forehand Ranch North 22-21 State Com 2H	MD Reference:	WELL @ 3162.0usft (Original Well Elev)
Well:	Forehand Ranch North 22-21 State Com 2H	North Reference:	Grid
Wellbore:	Forehand Ranch North 22-21 State Com 2H	Survey Calculation Method:	Minimum Curvature
Design:	Forehand Ranch North 22-21 State Com 2H	Database:	EDM 5000.1 Single User Db

Project	Forehand Ranch North 22-21 State Com 2H		
Map System:	US State Plane 1983.	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Forehand Ranch North 22-21 State Com 2H		
Site Position:		Northing:	470,695.75 usft
From:	Lat/Long	Easting:	591,718.05 usft
Position Uncertainty:	1.0 usft	Slot Radius:	17-1/2 "
		Latitude:	32° 17' 38.080 N
		Longitude:	104° 10' 13.033 W
		Grid Convergence:	0.09 °

Well	Forehand Ranch North 22-21 State Com 2H		
Well Position	+N/-S	0.0 usft	Northing: 470,695.75 usft
	+E/-W	0.0 usft	Easting: 591,718.05 usft
Position Uncertainty:	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 17' 38.080 N
		Longitude:	104° 10' 13.033 W
		Ground Level:	3,140.0 usft

Wellbore	Forehand Ranch North 22-21 State Com 2H		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	8/31/2018	6.98
			(°)
			59.97
			47,878
			(nT)

Design	Forehand Ranch North 22-21 State Com 2H		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			264.54

Survey Program	Date 8/15/2019		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
109.0	19,278.0	Forehand Ranch North 22-21 State Com 2	MWD
			Description
			MWD - Standard

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Design: Forehand Ranch North 22-21 State Com 2H

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TVD Reference: WELL @ 3162.0usft (Original Well Elev)
MD Reference: WELL @ 3162.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
0.0	0.00	0.00	0.0	-3,162.0	0.0	0.0	591,718.05	470,695.75	0.00	0.00
109.0	0.14	241.32	109.0	-3,053.0	-0.1	-0.1	591,717.94	470,695.69	0.12	0.13
205.0	0.91	205.87	205.0	-2,957.0	-0.8	-0.6	591,717.50	470,694.94	0.63	0.83
301.0	1.51	186.50	301.0	-2,861.0	-2.7	-1.0	591,717.03	470,693.00	1.29	0.75
397.0	1.66	165.51	396.9	-2,765.1	-5.4	-0.8	591,717.23	470,690.40	1.33	0.62
429.0	1.45	159.52	428.9	-2,733.1	-6.2	-0.6	591,717.49	470,689.57	1.15	0.83
482.0	1.54	159.90	481.9	-2,680.1	-7.5	-0.1	591,717.97	470,688.27	0.80	0.17
503.0	1.44	163.60	502.9	-2,659.1	-8.0	0.1	591,718.14	470,687.75	0.68	0.66
595.0	1.19	159.86	594.9	-2,567.1	-10.0	0.7	591,718.80	470,685.75	0.21	0.29
688.0	3.21	166.85	687.8	-2,474.2	-13.4	1.7	591,719.72	470,682.31	-0.38	2.19
782.0	9.32	165.38	781.2	-2,380.8	-23.4	4.2	591,722.24	470,672.37	-1.94	6.50
877.0	14.89	160.58	874.1	-2,287.9	-42.4	10.2	591,728.25	470,653.40	-6.12	5.95
971.0	15.09	161.35	964.9	-2,197.1	-65.3	18.1	591,736.18	470,630.42	-11.82	0.30
1,065.0	13.97	161.52	1,055.8	-2,106.2	-87.7	25.6	591,743.69	470,608.06	-17.17	1.19
1,160.0	12.64	163.10	1,148.3	-2,013.7	-108.5	32.3	591,750.34	470,587.24	-21.82	1.45
1,255.0	11.46	164.33	1,241.2	-1,920.8	-127.5	37.9	591,755.91	470,568.21	-25.55	1.27
1,349.0	10.48	163.40	1,333.5	-1,828.5	-144.7	42.8	591,760.88	470,551.02	-28.86	1.06
1,444.0	10.53	160.80	1,426.9	-1,735.1	-161.2	48.1	591,766.20	470,534.54	-32.59	0.50
1,538.0	10.49	155.02	1,519.3	-1,642.7	-177.1	54.6	591,772.64	470,518.67	-37.49	1.12
1,633.0	9.30	153.55	1,612.9	-1,549.1	-191.8	61.7	591,779.71	470,503.96	-43.13	1.28
1,727.0	9.19	152.44	1,705.7	-1,456.3	-205.2	68.5	591,786.57	470,490.51	-48.67	0.22
1,821.0	8.89	154.32	1,798.5	-1,363.5	-218.4	75.1	591,793.19	470,477.31	-54.01	0.45
1,915.0	8.85	150.19	1,891.4	-1,270.6	-231.3	81.9	591,799.93	470,464.49	-59.50	0.68
2,009.0	8.77	152.62	1,984.3	-1,177.7	-243.9	88.8	591,806.82	470,451.85	-65.15	0.40
2,104.0	7.85	155.28	2,078.3	-1,083.7	-256.2	94.8	591,812.86	470,439.53	-70.00	1.05
2,198.0	7.79	167.23	2,171.4	-990.6	-268.3	98.9	591,816.96	470,427.48	-72.93	1.73
2,292.0	7.45	172.98	2,264.6	-897.4	-280.5	101.1	591,819.11	470,415.22	-73.90	0.89

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TVD Reference: WELL @ 3162.0usft (Original Well Elev)
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)	
2,386.0	6.97	171.88	2,357.8	-804.2	-292.2	102.6	591,820.66	470,403.52	-74.33	0.53	
2,481.0	6.85	171.62	2,452.1	-709.9	-303.5	104.2	591,822.30	470,392.21	-74.89	0.13	
2,575.0	7.75	173.15	2,545.4	-616.6	-315.4	105.8	591,823.87	470,380.37	-75.33	0.98	
2,669.0	8.44	165.21	2,638.5	-523.5	-328.3	108.3	591,826.39	470,367.41	-76.60	1.40	
2,763.0	8.32	162.82	2,731.4	-430.6	-341.5	112.1	591,830.16	470,354.24	-79.10	0.39	
2,858.0	7.65	165.03	2,825.5	-336.5	-354.2	115.8	591,833.82	470,341.57	-81.54	0.78	
2,952.0	7.28	166.81	2,918.7	-243.3	-366.0	118.7	591,836.80	470,329.73	-83.38	0.46	
3,047.0	7.45	163.44	3,012.9	-149.1	-377.8	121.9	591,839.93	470,317.96	-85.37	0.49	
3,141.0	7.91	162.96	3,106.1	-55.9	-389.8	125.5	591,843.56	470,305.94	-87.84	0.49	
3,235.0	9.20	162.49	3,199.1	37.1	-403.2	129.7	591,847.72	470,292.59	-90.71	1.37	
3,330.0	9.05	163.93	3,292.9	130.9	-417.6	134.0	591,852.07	470,278.16	-93.67	0.29	
3,424.0	8.69	163.75	3,385.7	223.7	-431.5	138.0	591,856.10	470,264.24	-96.36	0.38	
3,518.0	8.23	164.50	3,478.7	316.7	-444.8	141.8	591,859.89	470,250.94	-98.87	0.50	
3,612.0	7.76	165.46	3,571.8	409.8	-457.4	145.2	591,863.28	470,238.31	-101.04	0.52	
3,706.0	7.76	166.73	3,664.9	502.9	-469.8	148.3	591,866.33	470,226.00	-102.90	0.18	
3,801.0	9.06	168.10	3,758.9	596.9	-483.3	151.3	591,869.34	470,212.43	-104.61	1.38	
3,895.0	8.99	167.75	3,851.7	689.7	-497.7	154.4	591,872.43	470,198.01	-106.31	0.09	
3,989.0	8.73	169.71	3,944.6	782.6	-511.9	157.2	591,875.26	470,183.82	-107.78	0.42	
4,084.0	8.40	172.76	4,038.6	876.6	-525.9	159.4	591,877.42	470,169.84	-108.60	0.59	
4,178.0	8.26	172.05	4,131.6	969.6	-539.4	161.2	591,879.22	470,156.34	-109.11	0.18	
4,272.0	8.04	174.25	4,224.6	1,062.6	-552.6	162.8	591,880.81	470,143.11	-109.44	0.41	
4,366.0	9.02	169.90	4,317.6	1,155.6	-566.4	164.7	591,882.77	470,129.32	-110.07	1.25	
4,461.0	9.04	162.88	4,411.4	1,249.4	-580.9	168.2	591,886.27	470,114.85	-112.18	1.16	
4,555.0	8.60	161.44	4,504.3	1,342.3	-594.6	172.6	591,890.68	470,101.13	-115.26	0.52	
4,649.0	8.13	166.50	4,597.3	1,435.3	-607.7	176.4	591,894.47	470,088.01	-117.79	0.93	
4,743.0	8.67	160.51	4,690.3	1,528.3	-620.9	180.3	591,898.38	470,074.87	-120.43	1.09	
4,837.0	8.98	158.79	4,783.2	1,621.2	-634.4	185.3	591,903.40	470,061.35	-124.14	0.43	

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	Easting (usft)	Northing (usft)	V. Sec (usft)	DLeg (°/100usft)	
4,931.0	9.09	156.54	4,876.0	1,714.0	-648.1	191.0	591,909.01	470,047.70	-128.43	0.39	
5,025.0	8.42	159.77	4,968.9	1,806.9	-661.3	196.3	591,914.35	470,034.43	-132.48	0.88	
5,120.0	8.35	159.77	5,062.9	1,900.9	-674.3	201.1	591,919.14	470,021.43	-136.01	0.07	
5,215.0	8.50	158.85	5,156.9	1,994.9	-687.3	206.0	591,924.06	470,008.41	-139.67	0.21	
5,308.0	8.30	157.69	5,248.9	2,086.9	-700.0	211.0	591,929.08	469,995.79	-143.47	0.28	
5,402.0	8.77	158.11	5,341.8	2,179.8	-712.9	216.3	591,934.33	469,982.86	-147.46	0.50	
5,495.0	8.01	158.43	5,433.8	2,271.8	-725.5	221.3	591,939.36	469,970.26	-151.27	0.82	
5,590.0	7.35	159.79	5,528.0	2,366.0	-737.4	225.8	591,943.89	469,958.40	-154.65	0.72	
5,684.0	6.77	162.81	5,621.3	2,459.3	-748.3	229.6	591,947.61	469,947.46	-157.31	0.73	
5,779.0	6.39	162.13	5,715.7	2,553.7	-758.7	232.8	591,950.88	469,937.08	-159.58	0.41	
5,873.0	6.26	161.71	5,809.1	2,647.1	-768.5	236.0	591,954.10	469,927.24	-161.85	0.15	
5,968.0	5.25	167.99	5,903.6	2,741.6	-777.7	238.6	591,956.63	469,918.07	-163.49	1.25	
6,062.0	4.02	172.97	5,997.3	2,835.3	-785.2	239.9	591,957.92	469,910.59	-164.07	1.38	
6,157.0	3.77	176.00	6,092.1	2,930.1	-791.6	240.5	591,958.55	469,904.17	-164.08	0.34	
6,251.0	3.53	180.47	6,185.9	3,023.9	-797.6	240.7	591,958.74	469,898.19	-163.71	0.40	
6,346.0	3.42	178.55	6,280.7	3,118.7	-803.3	240.7	591,958.79	469,892.44	-163.21	0.17	
6,440.0	3.31	177.08	6,374.5	3,212.5	-808.8	240.9	591,959.00	469,886.92	-162.89	0.15	
6,524.0	2.96	169.02	6,458.4	3,296.4	-813.4	241.5	591,959.53	469,882.37	-162.99	0.67	
6,618.0	2.64	167.03	6,552.3	3,390.3	-817.9	242.4	591,960.48	469,877.88	-163.51	0.36	
6,712.0	2.20	172.84	6,646.2	3,484.2	-821.8	243.1	591,961.19	469,873.98	-163.84	0.54	
6,807.0	1.96	182.39	6,741.2	3,579.2	-825.2	243.3	591,961.35	469,870.55	-163.68	0.44	
6,902.0	1.63	186.85	6,836.1	3,674.1	-828.2	243.1	591,961.12	469,867.58	-163.17	0.38	
6,996.0	1.63	186.04	6,930.1	3,768.1	-830.8	242.8	591,960.82	469,864.93	-162.61	0.02	
7,090.0	1.67	176.17	7,024.0	3,862.0	-833.5	242.7	591,960.77	469,862.23	-162.31	0.30	
7,185.0	1.87	172.31	7,119.0	3,957.0	-836.4	243.0	591,961.07	469,859.31	-162.33	0.24	
7,280.0	2.04	174.71	7,213.9	4,051.9	-839.7	243.4	591,961.44	469,856.09	-162.38	0.20	
7,375.0	1.85	167.41	7,308.9	4,146.9	-842.8	243.9	591,961.93	469,852.91	-162.57	0.33	

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Design: Forehand Ranch North 22-21 State Com 2H

Local Co-ordinate Reference: Well Forehand Ranch North 22-21 State Com 2H
TVD Reference: WELL @ 3162.0usft (Original Well Elev)
MD Reference: WELL @ 3162.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
7,440.0	1.82	169.94	7,373.8	4,211.8	-844.9	244.3	591,962.34	469,850.87	-162.78	0.13
7,576.0	1.49	177.48	7,509.8	4,347.8	-848.8	244.7	591,962.79	469,846.98	-162.87	0.29
7,671.0	0.18	220.38	7,604.8	4,442.8	-850.1	244.7	591,962.75	469,845.63	-162.70	1.44
7,766.0	1.73	352.77	7,699.8	4,537.8	-848.8	244.4	591,962.47	469,846.94	-162.54	1.95
7,860.0	1.73	353.04	7,793.7	4,631.7	-846.0	244.1	591,962.12	469,849.76	-162.46	0.01
7,954.0	3.09	0.17	7,887.6	4,725.6	-842.1	243.9	591,961.96	469,853.70	-162.67	1.48
8,048.0	3.86	6.46	7,981.5	4,819.5	-836.4	244.3	591,962.32	469,859.38	-163.58	0.91
8,142.0	3.78	8.39	8,075.3	4,913.3	-830.2	245.1	591,963.13	469,865.59	-164.97	0.16
8,236.0	3.37	357.53	8,169.1	5,007.1	-824.3	245.4	591,963.46	469,871.41	-165.86	0.84
8,331.0	2.54	3.44	8,263.9	5,101.9	-819.4	245.4	591,963.47	469,876.30	-166.33	0.93
8,425.0	0.73	40.75	8,357.9	5,195.9	-816.9	245.9	591,963.98	469,878.84	-167.08	2.14
8,519.0	0.20	0.61	8,451.9	5,289.9	-816.3	246.3	591,964.38	469,879.45	-167.53	0.63
8,614.0	0.84	272.69	8,546.9	5,384.9	-816.1	245.6	591,963.68	469,879.65	-166.86	0.90
KOP										
8,709.0	1.40	238.54	8,641.9	5,479.9	-816.7	243.9	591,962.00	469,879.08	-165.13	0.89
8,757.0	8.49	267.02	8,689.7	5,527.7	-817.2	239.9	591,957.95	469,878.59	-161.06	15.19
8,803.0	15.37	269.58	8,734.7	5,572.7	-817.4	230.4	591,948.45	469,878.37	-151.58	15.00
8,850.0	22.30	270.21	8,779.1	5,617.1	-817.4	215.2	591,933.29	469,878.35	-136.48	14.75
8,897.0	28.49	272.92	8,821.6	5,659.6	-816.8	195.1	591,913.16	469,878.96	-116.50	13.40
8,945.0	31.03	274.37	8,863.2	5,701.2	-815.3	171.3	591,889.38	469,880.48	-92.98	5.50
8,992.0	32.89	273.06	8,903.1	5,741.1	-813.7	146.5	591,864.56	469,882.09	-68.42	4.22
9,040.0	37.04	273.46	8,942.4	5,780.4	-812.1	119.0	591,837.10	469,883.66	-41.24	8.66
9,087.0	41.53	273.35	8,978.8	5,816.8	-810.3	89.3	591,807.40	469,885.42	-11.84	9.55
9,134.0	46.36	272.21	9,012.6	5,850.6	-808.8	56.8	591,774.84	469,886.99	20.43	10.41
9,181.0	51.17	271.41	9,043.6	5,881.6	-807.7	21.5	591,739.52	469,888.10	55.48	10.31
9,228.0	54.49	269.93	9,072.0	5,910.0	-807.2	-16.0	591,702.08	469,888.52	92.71	7.50
9,275.0	56.43	268.19	9,098.6	5,936.6	-807.9	-54.7	591,663.37	469,887.88	131.30	5.13

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9,319.0	58.72	268.64	9,122.2	5,960.2	-808.9	-91.8	591,626.25	469,886.86	168.36	5.28	
9,323.0	59.11	268.60	9,124.3	5,962.3	-809.0	-95.2	591,622.82	469,886.78	171.77	9.79	
9,370.0	61.88	269.85	9,147.4	5,985.4	-809.5	-136.1	591,581.93	469,886.23	212.54	6.33	
9,418.0	64.25	271.38	9,169.2	6,007.2	-809.1	-178.9	591,539.14	469,886.69	255.08	5.70	
9,465.0	67.35	270.61	9,188.4	6,026.4	-808.3	-221.8	591,496.29	469,887.43	297.68	6.76	
9,512.0	71.12	268.23	9,205.1	6,043.1	-808.8	-265.7	591,452.35	469,886.98	341.45	9.31	
9,559.0	74.98	268.04	9,218.8	6,056.8	-810.2	-310.6	591,407.43	469,885.51	386.31	8.22	
9,606.0	81.90	268.37	9,228.2	6,066.2	-811.7	-356.6	591,361.43	469,884.07	432.24	14.74	
9,653.0	85.79	269.28	9,233.3	6,071.3	-812.6	-403.3	591,314.72	469,883.12	478.83	8.50	
First Take Point											
9,700.0	89.55	270.86	9,235.2	6,073.2	-812.6	-450.3	591,267.77	469,883.18	525.56	8.68	
9,761.0	89.27	272.44	9,235.8	6,073.8	-810.8	-511.3	591,206.80	469,884.93	586.09	2.63	
9,855.0	92.58	271.96	9,234.3	6,072.3	-807.2	-605.2	591,112.89	469,888.54	679.22	3.56	
9,950.0	93.65	271.80	9,229.1	6,067.1	-804.1	-700.0	591,018.09	469,891.65	773.30	1.14	
10,044.0	92.63	270.18	9,224.0	6,062.0	-802.5	-793.8	590,924.25	469,893.27	866.56	2.03	
10,138.0	92.13	270.27	9,220.1	6,058.1	-802.1	-887.7	590,830.33	469,893.64	960.02	0.54	
10,231.0	92.24	270.77	9,216.5	6,054.5	-801.3	-980.7	590,737.40	469,894.49	1,052.45	0.55	
10,325.0	92.19	269.28	9,212.9	6,050.9	-801.2	-1,074.6	590,643.47	469,894.53	1,145.94	1.58	
10,421.0	91.68	267.54	9,209.6	6,047.6	-803.9	-1,170.5	590,547.57	469,891.86	1,241.66	1.89	
10,514.0	91.85	267.76	9,206.8	6,044.8	-807.7	-1,263.4	590,454.69	469,888.05	1,334.48	0.30	
10,607.0	91.74	267.67	9,203.9	6,041.9	-811.4	-1,356.2	590,361.81	469,884.35	1,427.30	0.15	
10,702.0	91.79	267.86	9,200.9	6,038.9	-815.1	-1,451.1	590,266.93	469,880.64	1,522.10	0.21	
10,796.0	91.79	267.87	9,198.0	6,036.0	-818.6	-1,545.0	590,173.04	469,877.14	1,615.90	0.01	
10,890.0	91.96	267.94	9,194.9	6,032.9	-822.0	-1,638.9	590,079.15	469,873.71	1,709.68	0.20	
10,984.0	90.78	267.79	9,192.7	6,030.7	-825.5	-1,732.8	589,985.25	469,870.21	1,803.50	1.27	
11,078.0	90.67	267.69	9,191.5	6,029.5	-829.2	-1,826.7	589,891.33	469,866.50	1,897.34	0.16	
11,173.0	89.83	267.77	9,191.1	6,029.1	-833.0	-1,921.7	589,796.40	469,862.74	1,992.19	0.89	

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11,267.0	89.78	267.58	9,191.4	6,029.4	-836.8	-2,015.6	589,702.48	469,858.92	2,086.05	0.21	
11,362.0	89.72	267.68	9,191.8	6,029.8	-840.8	-2,110.5	589,607.56	469,855.00	2,180.91	0.12	
11,456.0	89.72	267.60	9,192.3	6,030.3	-844.6	-2,204.4	589,513.65	469,851.13	2,274.77	0.09	
11,550.0	89.50	268.84	9,192.9	6,030.9	-847.5	-2,298.4	589,419.69	469,848.21	2,368.58	1.34	
11,644.0	89.83	269.42	9,193.5	6,031.5	-849.0	-2,392.3	589,325.71	469,846.78	2,462.27	0.71	
11,737.0	89.72	269.35	9,193.8	6,031.8	-850.0	-2,485.3	589,232.71	469,845.78	2,554.94	0.14	
11,831.0	89.83	269.44	9,194.2	6,032.2	-851.0	-2,579.3	589,138.72	469,844.79	2,648.60	0.15	
11,925.0	89.78	269.33	9,194.5	6,032.5	-852.0	-2,673.3	589,044.73	469,843.78	2,742.27	0.13	
12,019.0	89.61	269.38	9,195.0	6,033.0	-853.0	-2,767.3	588,950.73	469,842.72	2,835.93	0.19	
12,113.0	89.83	269.43	9,195.5	6,033.5	-854.0	-2,861.3	588,856.74	469,841.74	2,929.59	0.24	
12,207.0	93.81	269.98	9,192.5	6,030.5	-854.5	-2,955.2	588,762.81	469,841.26	3,023.14	4.27	
12,301.0	93.87	269.95	9,186.2	6,024.2	-854.5	-3,049.0	588,669.02	469,841.20	3,116.51	0.07	
12,395.0	92.36	269.83	9,181.1	6,019.1	-854.7	-3,142.9	588,575.16	469,841.02	3,209.96	1.61	
12,489.0	91.85	269.76	9,177.6	6,015.6	-855.1	-3,236.8	588,481.22	469,840.69	3,303.50	0.55	
12,584.0	90.95	269.84	9,175.3	6,013.3	-855.4	-3,331.8	588,386.25	469,840.36	3,398.08	0.95	
12,677.0	90.78	269.69	9,173.9	6,011.9	-855.8	-3,424.8	588,293.27	469,839.97	3,490.68	0.24	
12,772.0	90.45	269.69	9,172.9	6,010.9	-856.3	-3,519.8	588,198.27	469,839.46	3,585.29	0.35	
12,864.0	90.39	269.70	9,172.2	6,010.2	-856.8	-3,611.8	588,106.28	469,838.97	3,676.91	0.07	
12,958.0	90.50	269.76	9,171.5	6,009.5	-857.2	-3,705.8	588,012.28	469,838.53	3,770.53	0.13	
13,053.0	90.28	269.50	9,170.8	6,008.8	-857.8	-3,800.8	587,917.28	469,837.91	3,865.15	0.36	
13,147.0	90.45	269.68	9,170.2	6,008.2	-858.5	-3,894.8	587,823.29	469,837.24	3,958.78	0.26	
13,242.0	90.39	269.68	9,169.5	6,007.5	-859.0	-3,989.8	587,728.29	469,836.71	4,053.40	0.06	
13,336.0	90.67	269.59	9,168.7	6,006.7	-859.6	-4,083.8	587,634.30	469,836.11	4,147.02	0.31	
13,430.0	90.45	269.56	9,167.8	6,005.8	-860.3	-4,177.7	587,540.31	469,835.41	4,240.66	0.24	
13,524.0	90.45	269.67	9,167.0	6,005.0	-861.0	-4,271.7	587,446.31	469,834.78	4,334.28	0.12	
13,618.0	90.39	269.36	9,166.3	6,004.3	-861.8	-4,365.7	587,352.32	469,833.99	4,427.93	0.34	
13,712.0	90.17	269.57	9,165.9	6,003.9	-862.6	-4,459.7	587,258.32	469,833.11	4,521.58	0.32	

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13,807.0	90.50	269.65	9,165.3	6,003.3	-863.3	-4,554.7	587,163.33	469,832.46	4,616.21	0.36
13,901.0	90.45	269.66	9,164.5	6,002.5	-863.9	-4,648.7	587,069.33	469,831.90	4,709.83	0.05
13,996.0	90.45	268.14	9,163.8	6,001.8	-865.7	-4,743.7	586,974.35	469,830.07	4,804.55	1.60
14,090.0	90.39	267.47	9,163.1	6,001.1	-869.3	-4,837.6	586,880.43	469,826.47	4,898.39	0.72
14,184.0	90.39	267.48	9,162.5	6,000.5	-873.4	-4,931.5	586,786.52	469,822.33	4,992.27	0.01
14,278.0	90.45	267.80	9,161.8	5,999.8	-877.3	-5,025.5	586,692.60	469,818.46	5,086.13	0.35
14,372.0	90.28	267.49	9,161.2	5,999.2	-881.2	-5,119.4	586,598.68	469,814.60	5,179.99	0.38
14,466.0	90.56	267.64	9,160.5	5,998.5	-885.1	-5,213.3	586,504.77	469,810.61	5,273.85	0.34
14,560.0	90.62	267.74	9,159.5	5,997.5	-888.9	-5,307.2	586,410.85	469,806.82	5,367.71	0.12
14,655.0	90.34	267.58	9,158.7	5,996.7	-892.8	-5,402.1	586,315.94	469,802.94	5,462.56	0.34
14,749.0	90.28	267.73	9,158.2	5,996.2	-896.7	-5,496.0	586,222.02	469,799.09	5,556.42	0.17
14,843.0	90.45	267.66	9,157.6	5,995.6	-900.4	-5,590.0	586,128.09	469,795.31	5,650.28	0.20
14,936.0	90.34	267.45	9,157.0	5,995.0	-904.4	-5,682.9	586,035.18	469,791.34	5,743.15	0.25
15,030.0	90.39	267.36	9,156.4	5,994.4	-908.7	-5,776.8	585,941.28	469,787.09	5,837.03	0.11
15,125.0	90.28	268.78	9,155.8	5,993.8	-911.9	-5,871.7	585,846.34	469,783.89	5,931.84	1.50
15,219.0	90.28	269.05	9,155.4	5,993.4	-913.6	-5,965.7	585,752.35	469,782.11	6,025.57	0.29
15,314.0	90.34	269.36	9,154.8	5,992.8	-915.0	-6,060.7	585,657.37	469,780.79	6,120.25	0.33
15,407.0	90.45	269.32	9,154.2	5,992.2	-916.0	-6,153.7	585,564.37	469,779.72	6,212.92	0.13
15,501.0	90.28	269.25	9,153.6	5,991.6	-917.2	-6,247.7	585,470.38	469,778.55	6,306.60	0.20
15,595.0	90.34	269.37	9,153.1	5,991.1	-918.3	-6,341.7	585,376.39	469,777.42	6,400.27	0.14
15,689.0	90.39	269.34	9,152.5	5,990.5	-919.4	-6,435.7	585,282.40	469,776.36	6,493.94	0.06
15,783.0	90.39	269.34	9,151.9	5,989.9	-920.5	-6,529.6	585,188.41	469,775.27	6,587.61	0.00
15,878.0	90.22	269.16	9,151.3	5,989.3	-921.7	-6,624.6	585,093.42	469,774.03	6,682.28	0.26
15,972.0	90.56	269.13	9,150.7	5,988.7	-923.1	-6,718.6	584,999.43	469,772.63	6,775.98	0.36
16,067.0	91.29	268.17	9,149.2	5,987.2	-925.4	-6,813.6	584,904.47	469,770.39	6,870.72	1.27
16,161.0	89.94	269.85	9,148.2	5,986.2	-927.0	-6,907.6	584,810.50	469,768.77	6,964.42	2.29
16,255.0	90.00	269.97	9,148.2	5,986.2	-927.1	-7,001.6	584,716.50	469,768.62	7,058.01	0.14

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16,349.0	90.00	269.93	9,148.2	5,986.2	-927.2	-7,095.6	584,622.50	469,768.54	7,151.59	0.04	
16,442.0	90.17	270.01	9,148.1	5,986.1	-927.3	-7,188.6	584,529.50	469,768.49	7,244.17	0.20	
16,536.0	90.06	269.93	9,147.9	5,985.9	-927.3	-7,282.6	584,435.50	469,768.44	7,337.75	0.14	
16,631.0	90.67	269.95	9,147.3	5,985.3	-927.4	-7,377.6	584,340.50	469,768.34	7,432.33	0.64	
16,725.0	90.62	270.10	9,146.2	5,984.2	-927.4	-7,471.6	584,246.50	469,768.38	7,525.89	0.17	
16,820.0	90.45	269.77	9,145.3	5,983.3	-927.5	-7,566.5	584,151.51	469,768.27	7,620.47	0.39	
16,914.0	90.39	269.57	9,144.6	5,982.6	-928.0	-7,660.5	584,057.51	469,767.73	7,714.09	0.22	
17,009.0	90.56	269.77	9,143.9	5,981.9	-928.6	-7,755.5	583,962.52	469,767.18	7,808.70	0.28	
17,103.0	90.45	269.90	9,143.0	5,981.0	-928.8	-7,849.5	583,868.52	469,766.91	7,902.30	0.18	
17,197.0	90.56	269.74	9,142.2	5,980.2	-929.1	-7,943.5	583,774.53	469,766.62	7,995.90	0.21	
17,291.0	90.62	269.85	9,141.2	5,979.2	-929.5	-8,037.5	583,680.53	469,766.28	8,089.50	0.13	
17,385.0	91.23	269.40	9,139.7	5,977.7	-930.1	-8,131.5	583,586.55	469,765.67	8,183.11	0.81	
17,478.0	90.17	268.60	9,138.6	5,976.6	-931.7	-8,224.5	583,493.57	469,764.04	8,275.82	1.43	
17,572.0	90.50	267.97	9,138.0	5,976.0	-934.5	-8,318.4	583,399.61	469,761.23	8,369.62	0.76	
17,667.0	90.51	267.05	9,137.2	5,975.2	-938.6	-8,413.3	583,304.71	469,757.10	8,464.49	0.97	
17,762.0	90.39	266.82	9,136.4	5,974.4	-943.7	-8,508.2	583,209.85	469,752.02	8,559.40	0.27	
17,855.0	90.11	266.00	9,136.0	5,974.0	-949.5	-8,601.0	583,117.03	469,746.20	8,652.35	0.93	
17,950.0	91.29	265.82	9,134.9	5,972.9	-956.3	-8,695.8	583,022.28	469,739.43	8,747.31	1.26	
18,044.0	91.46	265.59	9,132.6	5,970.6	-963.4	-8,789.5	582,928.57	469,732.39	8,841.27	0.30	
18,139.0	91.29	264.97	9,130.3	5,968.3	-971.2	-8,884.1	582,833.92	469,724.57	8,936.23	0.68	
18,233.0	90.73	264.16	9,128.7	5,966.7	-980.1	-8,977.7	582,740.36	469,715.67	9,030.22	1.05	
18,326.0	88.49	266.21	9,129.3	5,967.3	-987.9	-9,070.4	582,647.70	469,707.87	9,123.20	3.26	
18,420.0	86.52	268.24	9,133.4	5,971.4	-992.4	-9,164.1	582,553.91	469,703.32	9,216.99	3.01	
18,515.0	86.91	271.07	9,138.9	5,976.9	-993.0	-9,259.0	582,459.08	469,702.75	9,311.45	3.00	
18,609.0	89.94	272.91	9,141.4	5,979.4	-989.7	-9,352.9	582,365.19	469,706.01	9,404.61	3.77	
18,703.0	91.18	273.41	9,140.5	5,978.5	-984.6	-9,446.7	582,271.34	469,711.19	9,497.54	1.42	
18,797.0	91.12	273.54	9,138.6	5,976.6	-978.9	-9,540.5	582,177.53	469,716.89	9,590.38	0.15	

Company: Caza Operating LLC
Project: Forehand Ranch North 22-21 State Com 2H
Site: Forehand Ranch North 22-21 State Com 2H
Well: Forehand Ranch North 22-21 State Com 2H
Wellbore: Forehand Ranch North 22-21 State Com 2H
Design: Forehand Ranch North 22-21 State Com 2H

Local Co-ordinate Reference: Well Forehand Ranch North 22-21 State Com 2H
TVD Reference: WELL @ 3162.0usft (Original Well Elev)
MD Reference: WELL @ 3162.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)
18,986.0	91.74	272.12	9,133.9	5,971.9	-969.5	-9,729.2	581,988.82	469,726.22	9,777.34	0.82
19,080.0	91.57	270.90	9,131.2	5,969.2	-967.1	-9,823.2	581,894.90	469,728.69	9,870.61	1.31
19,169.0	91.57	270.09	9,128.8	5,966.8	-966.3	-9,912.1	581,805.93	469,729.46	9,959.09	0.91
19,187.0	91.57	270.09	9,128.3	5,966.3	-966.3	-9,930.1	581,787.94	469,729.49	9,977.00	0.00
Last Take Point										
19,278.0	91.57	270.09	9,125.8	5,963.8	-966.1	-10,021.1	581,696.98	469,729.63	10,067.54	0.00
BHL										

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,614.0	8,546.9	-816.1	245.6	KOP
9,653.0	9,233.3	-812.6	-403.3	First Take Point
19,187.0	9,128.3	-966.3	-9,930.1	Last Take Point
19,278.0	9,125.8	-966.1	-10,021.1	BHL

Checked By: _____ Approved By: _____ Date: _____

This survey is true and accurate to the best of my knowledge.
 Steve Morris

