



Company: Catena Resources Operating, LLC
Well: Anchor 19-35-28 2H
County: Lea County, New Mexico (NAD 83)
Rig: 25' KB
Wellbore: Wellbore #1
Design: Design #2
Created By: VLS
Date: 8:51, February 05 2019

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

To convert a Magnetic Direction to a Grid Direction, Add 6.322°
To convert a Magnetic Direction to a True Direction, Add 6.794° East
To convert a True Direction to a Grid Direction, Subtract 0.473°



Azimuths to Grid North
True North: -0.47°
Magnetic North: 6.32°

Magnetic Field
Strength: 4807.6 nT
Dip Angle: 60.41°
Date: 2/1/2019
Model: BGGM2018

SURVEY PROGRAM

Depth From	Depth To	Survey/Plan	Tool
0.00	21367.13	Design #2 (Wellbore #1)	MWD

CASING DETAILS

TVD	MD	Name	Size
4000.00	4000.00	9 5/8"	9-5/8"

WELL DETAILS: Anchor 19-35-28 2H

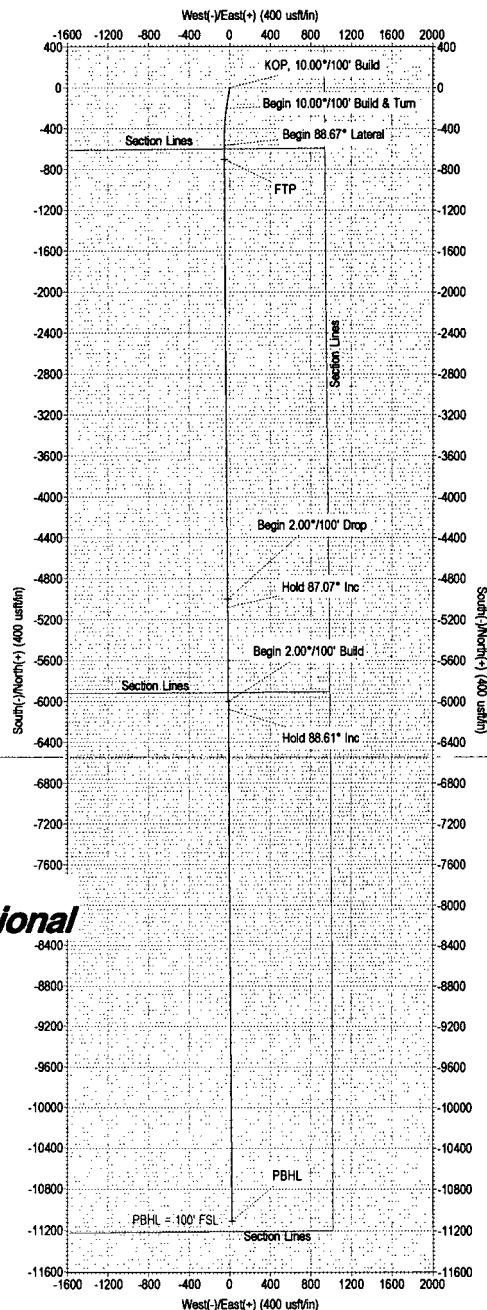
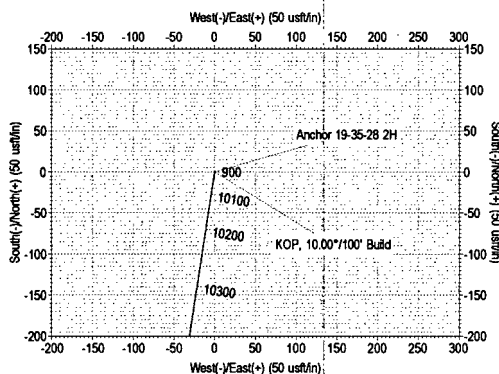
+N-S	+E-W	GL @ 3747.00	Well @ 3772.00 uft (25' KB)	Longitude
0.00	0.00	Northing 597817.75	Easting 811182.36	Latitude 32° 38' 25.399 N 103° 27' 24.117 W

DESIGN TARGET DETAILS

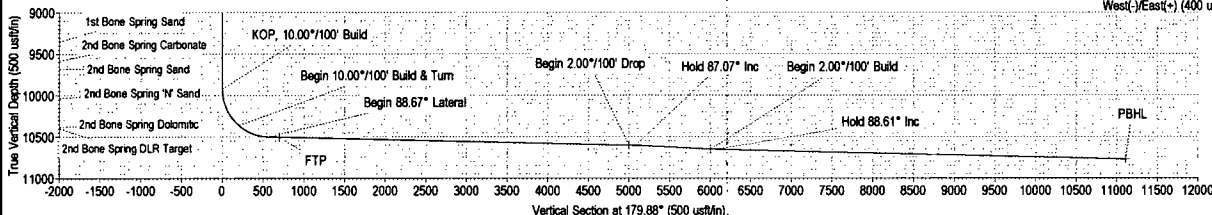
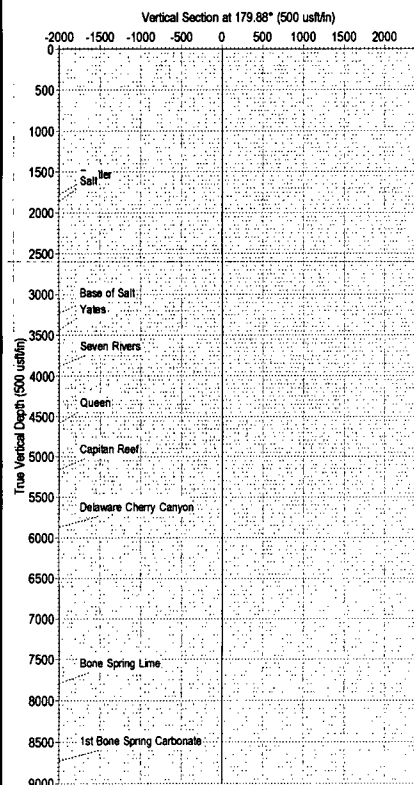
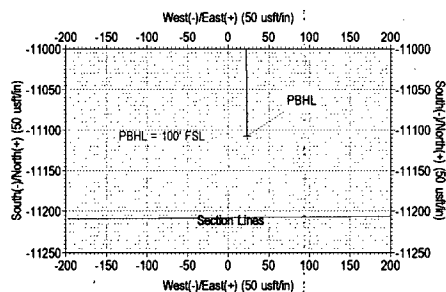
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
5000' vs v2 - Anchor 19-35-28 2H	10603.00	-5000.06	-21.33	592817.69	811161.04	32° 37' 35.929 N	103° 27' 24.849 W
6000' vs v2 - Anchor 19-35-28 2H	10653.00	-6000.04	-14.08	591817.71	811168.29	32° 37' 26.034 N	103° 27' 24.861 W
PBHL v2 - Anchor 19-35-28 2H	10778.00	-11107.51	22.96	586710.24	811205.32	32° 36' 35.496 N	103° 27' 24.920 W
FTP v2 - Anchor 19-35-28 2H	10503.32	-700.49	-53.91	597117.26	811128.45	32° 38' 18.473 N	103° 27' 24.815 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	KOP, 10.00°/100' Build
9923.99	0.00	0.00	9923.99	0.00	0.00	0.00	0.000	0.00	Begin 10.00°/100' Build & Turn
10423.99	50.00	188.80	10362.90	-202.26	-31.31	10.00	188.800	202.19	Begin 10.00°/100' Lateral
10819.70	88.67	179.58	10500.16	-564.34	-53.95	10.00	-14.566	564.23	Begin 2.00°/100' Drop
15256.72	88.67	179.58	10603.00	-5000.06	-21.33	0.00	0.000	5000.00	Hold 87.07° Inc
15336.63	87.07	179.58	10605.97	-5079.90	-20.74	2.00	179.779	5079.85	Begin 2.00°/100' Build
16257.99	87.07	179.58	10653.00	-6000.04	-14.08	0.00	0.000	6000.00	Hold 88.61° Inc
16334.78	88.61	179.58	10655.89	-6076.77	-13.52	2.00	-0.007	6076.73	PBHL
21367.13	88.61	179.58	10778.00	-11107.51	22.96	0.00	0.000	11107.53	



MS Directional



Database:	5000.1 Conroe DB	Local Co-ordinate Reference:	Well Anchor 19-35-28 2H
Company:	Catena Resources Operating, LLC	TVD Reference:	Well @ 3772.00usft (25' KB)
Project:	Lea County, New Mexico (NAD 83)	MD Reference:	Well @ 3772.00usft (25' KB)
Site:	Anchor 19-35-28	North Reference:	Grid
Well:	Anchor 19-35-28 2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Project	Lea County, New Mexico (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Anchor 19-35-28			
Site Position:		Northing:	597,583.43 usft	Latitude:	32° 38' 23.401 N
From:	Lat/Long	Easting:	807,229.35 usft	Longitude:	103° 28' 10.366 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	Anchor 19-35-28 2H					
Well Position	+N/-S	0.00 usft	Northing:	597,817.75 usft	Latitude:	32° 38' 25.399 N
	+E/-W	0.00 usft	Easting:	811,182.36 usft	Longitude:	103° 27' 24.117 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,747.00 usft
Grid Convergence:	-0.473 °					

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2018	2/1/2019	6.794	60.412	48,074.56

Design	Design #2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	179.88	

Plan Survey Tool Program		Date 2/4/2019			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	21,367.14	Design #2 (Wellbore #1)	MWD	
				OWSG MWD - Standard	

Database: 5000.1 Conroe DB
Company: Catena Resources Operating, LLC
Project: Lea County, New Mexico (NAD 83)
Site: Anchor 19-35-28
Well: Anchor 19-35-28 2H
Wellbore: Wellbore #1
Design: Design #2

Local Co-ordinate Reference: Well Anchor 19-35-28 2H
TVD Reference: Well @ 3772.00usft (25' KB)
MD Reference: Well @ 3772.00usft (25' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
9,923.99	0.00	0.00	9,923.99	0.00	0.00	0.00	0.00	0.00	0.000	
10,423.99	50.00	188.80	10,362.90	-202.26	-31.31	10.00	10.00	0.00	188.800	
10,819.70	88.67	179.58	10,500.16	-564.34	-53.95	10.00	9.77	-2.33	-14.566	
15,256.72	88.67	179.58	10,603.00	-5,000.06	-21.33	0.00	0.00	0.00	0.000	5000'vs v2 - Anchor
15,336.63	87.07	179.58	10,605.97	-5,079.90	-20.74	2.00	-2.00	0.01	179.779	
16,257.99	87.07	179.58	10,653.00	-6,000.04	-14.08	0.00	0.00	0.00	0.000	6000'vs v2 - Anchor
16,334.78	88.61	179.58	10,655.89	-6,076.77	-13.52	2.00	2.00	0.00	-0.007	
21,367.14	88.61	179.58	10,778.00	-11,107.51	22.96	0.00	0.00	0.00	0.000	PBHL v2 - Anchor 1

Database: 5000.1 Conroe DB
Company: Catena Resources Operating, LLC
Project: Lea County, New Mexico (NAD 83)
Site: Anchor 19-35-28
Well: Anchor 19-35-28 2H
Wellbore: Wellbore #1
Design: Design #2

Local Co-ordinate Reference: Well Anchor 19-35-28 2H
TVD Reference: Well @ 3772.00usft (25' KB)
MD Reference: Well @ 3772.00usft (25' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,776.00	0.00	0.00	1,776.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,858.00	0.00	0.00	1,858.00	0.00	0.00	0.00	0.00	0.00	0.00
Salt									
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,228.00	0.00	0.00	3,228.00	0.00	0.00	0.00	0.00	0.00	0.00
Base of Salt									
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,431.00	0.00	0.00	3,431.00	0.00	0.00	0.00	0.00	0.00	0.00
Yates									
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,880.00	0.00	0.00	3,880.00	0.00	0.00	0.00	0.00	0.00	0.00
Seven Rivers									
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	5000.1 Conroe DB	Local Co-ordinate Reference:	Well Anchor 19-35-28 2H
Company:	Catena Resources Operating, LLC	TVD Reference:	Well @ 3772.00usft (25' KB)
Project:	Lea County, New Mexico (NAD 83)	MD Reference:	Well @ 3772.00usft (25' KB)
Site:	Anchor 19-35-28	North Reference:	Grid
Well:	Anchor 19-35-28 2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,577.00	0.00	0.00	4,577.00	0.00	0.00	0.00	0.00	0.00	0.00
Queen									
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,157.00	0.00	0.00	5,157.00	0.00	0.00	0.00	0.00	0.00	0.00
Capitan Reef									
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,869.00	0.00	0.00	5,869.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware Cherry Canyon									
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,792.00	0.00	0.00	7,792.00	0.00	0.00	0.00	0.00	0.00	0.00
Bone Spring Lime									
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00

Database: 5000.1 Conroe DB
Company: Catena Resources Operating, LLC
Project: Lea County, New Mexico (NAD 83)
Site: Anchor 19-35-28
Well: Anchor 19-35-28 2H
Wellbore: Wellbore #1
Design: Design #2

Local Co-ordinate Reference: Well Anchor 19-35-28 2H
TVD Reference: Well @ 3772.00usft (25' KB)
MD Reference: Well @ 3772.00usft (25' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,729.00	0.00	0.00	8,729.00	0.00	0.00	0.00	0.00	0.00	0.00
1st Bone Spring Carbonate									
8,800.00	0.00	0.00	8,800.00	0.00	0.00	0.00	0.00	0.00	0.00
8,900.00	0.00	0.00	8,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,000.00	0.00	0.00	9,000.00	0.00	0.00	0.00	0.00	0.00	0.00
9,100.00	0.00	0.00	9,100.00	0.00	0.00	0.00	0.00	0.00	0.00
9,200.00	0.00	0.00	9,200.00	0.00	0.00	0.00	0.00	0.00	0.00
9,300.00	0.00	0.00	9,300.00	0.00	0.00	0.00	0.00	0.00	0.00
9,354.00	0.00	0.00	9,354.00	0.00	0.00	0.00	0.00	0.00	0.00
1st Bone Spring Sand									
9,400.00	0.00	0.00	9,400.00	0.00	0.00	0.00	0.00	0.00	0.00
9,500.00	0.00	0.00	9,500.00	0.00	0.00	0.00	0.00	0.00	0.00
9,581.00	0.00	0.00	9,581.00	0.00	0.00	0.00	0.00	0.00	0.00
2nd Bone Spring Carbonate									
9,600.00	0.00	0.00	9,600.00	0.00	0.00	0.00	0.00	0.00	0.00
9,682.00	0.00	0.00	9,682.00	0.00	0.00	0.00	0.00	0.00	0.00
2nd Bone Spring Sand									
9,700.00	0.00	0.00	9,700.00	0.00	0.00	0.00	0.00	0.00	0.00
9,800.00	0.00	0.00	9,800.00	0.00	0.00	0.00	0.00	0.00	0.00
9,900.00	0.00	0.00	9,900.00	0.00	0.00	0.00	0.00	0.00	0.00
9,923.99	0.00	0.00	9,923.99	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 10.00°/100' Build									
9,950.00	2.60	188.80	9,949.99	-0.58	-0.09	0.58	10.00	10.00	0.00
10,000.00	7.60	188.80	9,999.78	-4.98	-0.77	4.97	10.00	10.00	0.00
10,036.73	11.27	188.80	10,036.00	-10.93	-1.69	10.92	10.00	10.00	0.00
2nd Bone Spring 'N' Sand									
10,050.00	12.60	188.80	10,048.99	-13.64	-2.11	13.63	10.00	10.00	0.00
10,100.00	17.60	188.80	10,097.24	-26.51	-4.10	26.50	10.00	10.00	0.00
10,150.00	22.60	188.80	10,144.18	-43.48	-6.73	43.47	10.00	10.00	0.00
10,200.00	27.60	188.80	10,189.45	-64.44	-9.98	64.42	10.00	10.00	0.00
10,250.00	32.60	188.80	10,232.69	-89.21	-13.81	89.18	10.00	10.00	0.00
10,300.00	37.60	188.80	10,273.59	-117.61	-18.21	117.58	10.00	10.00	0.00
10,350.00	42.60	188.80	10,311.82	-149.43	-23.13	149.38	10.00	10.00	0.00
10,400.00	47.60	188.80	10,347.10	-184.42	-28.55	184.36	10.00	10.00	0.00
10,423.99	50.00	188.80	10,362.90	-202.26	-31.31	202.19	10.00	10.00	0.00
Begin 10.00°/100' Build & Turn									
10,450.00	52.52	187.98	10,379.18	-222.33	-34.27	222.26	10.00	9.69	-3.17
10,453.01	52.81	187.88	10,381.00	-224.70	-34.60	224.62	10.00	9.70	-3.05
2nd Bone Spring Dolomitic									
10,487.44	56.16	186.88	10,401.00	-252.49	-38.19	252.41	10.00	9.72	-2.91
2nd Bone Spring DLR Target									
10,500.00	57.38	186.54	10,407.88	-262.92	-39.42	262.84	10.00	9.73	-2.75
10,550.00	62.25	185.25	10,433.02	-305.90	-43.84	305.81	10.00	9.75	-2.58
10,600.00	67.14	184.07	10,454.38	-350.94	-47.50	350.84	10.00	9.77	-2.36
10,650.00	72.03	182.97	10,471.82	-397.70	-50.37	397.59	10.00	9.79	-2.20
10,700.00	76.93	181.93	10,485.19	-445.81	-52.42	445.71	10.00	9.80	-2.08
10,750.00	81.83	180.93	10,494.40	-494.93	-53.65	494.82	10.00	9.81	-2.00
10,800.00	86.74	179.96	10,499.38	-544.66	-54.03	544.55	10.00	9.81	-1.95
10,819.70	88.67	179.58	10,500.16	-564.34	-53.95	564.23	10.00	9.81	-1.93
Begin 88.67° Lateral									
10,900.00	88.67	179.58	10,502.03	-644.62	-53.36	644.51	0.00	0.00	0.00
11,000.00	88.67	179.58	10,504.34	-744.59	-52.63	744.48	0.00	0.00	0.00

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Design: Design #2

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TVD Reference: Well @ 3772.00usft (25' KB)
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Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,100.00	88.67	179.58	10,506.66	-844.56	-51.89	844.45	0.00	0.00	0.00
11,200.00	88.67	179.58	10,508.98	-944.53	-51.15	944.42	0.00	0.00	0.00
11,300.00	88.67	179.58	10,511.30	-1,044.50	-50.42	1,044.40	0.00	0.00	0.00
11,400.00	88.67	179.58	10,513.61	-1,144.47	-49.68	1,144.37	0.00	0.00	0.00
11,500.00	88.67	179.58	10,515.93	-1,244.44	-48.95	1,244.34	0.00	0.00	0.00
11,600.00	88.67	179.58	10,518.25	-1,344.41	-48.21	1,344.31	0.00	0.00	0.00
11,700.00	88.67	179.58	10,520.57	-1,444.38	-47.48	1,444.28	0.00	0.00	0.00
11,800.00	88.67	179.58	10,522.88	-1,544.35	-46.74	1,544.26	0.00	0.00	0.00
11,900.00	88.67	179.58	10,525.20	-1,644.33	-46.01	1,644.23	0.00	0.00	0.00
12,000.00	88.67	179.58	10,527.52	-1,744.30	-45.27	1,744.20	0.00	0.00	0.00
12,100.00	88.67	179.58	10,529.84	-1,844.27	-44.54	1,844.17	0.00	0.00	0.00
12,200.00	88.67	179.58	10,532.16	-1,944.24	-43.80	1,944.14	0.00	0.00	0.00
12,300.00	88.67	179.58	10,534.47	-2,044.21	-43.07	2,044.11	0.00	0.00	0.00
12,400.00	88.67	179.58	10,536.79	-2,144.18	-42.33	2,144.09	0.00	0.00	0.00
12,500.00	88.67	179.58	10,539.11	-2,244.15	-41.60	2,244.06	0.00	0.00	0.00
12,600.00	88.67	179.58	10,541.43	-2,344.12	-40.86	2,344.03	0.00	0.00	0.00
12,700.00	88.67	179.58	10,543.74	-2,444.09	-40.13	2,444.00	0.00	0.00	0.00
12,800.00	88.67	179.58	10,546.06	-2,544.06	-39.39	2,543.97	0.00	0.00	0.00
12,900.00	88.67	179.58	10,548.38	-2,644.03	-38.65	2,643.94	0.00	0.00	0.00
13,000.00	88.67	179.58	10,550.70	-2,744.00	-37.92	2,743.92	0.00	0.00	0.00
13,100.00	88.67	179.58	10,553.01	-2,843.97	-37.18	2,843.89	0.00	0.00	0.00
13,200.00	88.67	179.58	10,555.33	-2,943.94	-36.45	2,943.86	0.00	0.00	0.00
13,300.00	88.67	179.58	10,557.65	-3,043.91	-35.71	3,043.83	0.00	0.00	0.00
13,400.00	88.67	179.58	10,559.97	-3,143.88	-34.98	3,143.80	0.00	0.00	0.00
13,500.00	88.67	179.58	10,562.29	-3,243.85	-34.24	3,243.77	0.00	0.00	0.00
13,600.00	88.67	179.58	10,564.60	-3,343.82	-33.51	3,343.75	0.00	0.00	0.00
13,700.00	88.67	179.58	10,566.92	-3,443.79	-32.77	3,443.72	0.00	0.00	0.00
13,800.00	88.67	179.58	10,569.24	-3,543.76	-32.04	3,543.69	0.00	0.00	0.00
13,900.00	88.67	179.58	10,571.56	-3,643.73	-31.30	3,643.66	0.00	0.00	0.00
14,000.00	88.67	179.58	10,573.87	-3,743.70	-30.57	3,743.63	0.00	0.00	0.00
14,100.00	88.67	179.58	10,576.19	-3,843.68	-29.83	3,843.61	0.00	0.00	0.00
14,200.00	88.67	179.58	10,578.51	-3,943.65	-29.10	3,943.58	0.00	0.00	0.00
14,300.00	88.67	179.58	10,580.83	-4,043.62	-28.36	4,043.55	0.00	0.00	0.00
14,400.00	88.67	179.58	10,583.14	-4,143.59	-27.63	4,143.52	0.00	0.00	0.00
14,500.00	88.67	179.58	10,585.46	-4,243.56	-26.89	4,243.49	0.00	0.00	0.00
14,600.00	88.67	179.58	10,587.78	-4,343.53	-26.16	4,343.46	0.00	0.00	0.00
14,700.00	88.67	179.58	10,590.10	-4,443.50	-25.42	4,443.44	0.00	0.00	0.00
14,800.00	88.67	179.58	10,592.41	-4,543.47	-24.68	4,543.41	0.00	0.00	0.00
14,900.00	88.67	179.58	10,594.73	-4,643.44	-23.95	4,643.38	0.00	0.00	0.00
15,000.00	88.67	179.58	10,597.05	-4,743.41	-23.21	4,743.35	0.00	0.00	0.00
15,100.00	88.67	179.58	10,599.37	-4,843.38	-22.48	4,843.32	0.00	0.00	0.00
15,200.00	88.67	179.58	10,601.69	-4,943.35	-21.74	4,943.29	0.00	0.00	0.00
15,256.72	88.67	179.58	10,603.00	-5,000.06	-21.33	5,000.00	0.00	0.00	0.00
Begin 2.00°/100' Drop									
15,300.00	87.81	179.58	10,604.33	-5,043.31	-21.01	5,043.26	2.00	-2.00	0.01
15,336.63	87.07	179.58	10,605.97	-5,079.90	-20.74	5,079.85	2.00	-2.00	0.01
Hold 87.07° Inc									
15,400.00	87.07	179.58	10,609.20	-5,143.19	-20.29	5,143.14	0.00	0.00	0.00
15,500.00	87.07	179.58	10,614.31	-5,243.06	-19.56	5,243.00	0.00	0.00	0.00
15,600.00	87.07	179.58	10,619.41	-5,342.92	-18.84	5,342.87	0.00	0.00	0.00
15,700.00	87.07	179.58	10,624.52	-5,442.79	-18.11	5,442.74	0.00	0.00	0.00
15,800.00	87.07	179.58	10,629.62	-5,542.66	-17.39	5,542.61	0.00	0.00	0.00
15,900.00	87.07	179.58	10,634.73	-5,642.52	-16.67	5,642.48	0.00	0.00	0.00

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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,000.00	87.07	179.58	10,639.83	-5,742.39	-15.94	5,742.35	0.00	0.00	0.00
16,100.00	87.07	179.58	10,644.94	-5,842.26	-15.22	5,842.21	0.00	0.00	0.00
16,200.00	87.07	179.58	10,650.04	-5,942.12	-14.49	5,942.08	0.00	0.00	0.00
16,257.99	87.07	179.58	10,653.00	-6,000.04	-14.08	6,000.00	0.00	0.00	0.00
Begin 2.00°/100' Build									
16,300.00	87.91	179.58	10,654.84	-6,042.01	-13.77	6,041.96	2.00	2.00	0.00
16,334.78	88.61	179.58	10,655.89	-6,076.77	-13.52	6,076.73	2.00	2.00	0.00
Hold 88.61° Inc									
16,400.00	88.61	179.58	10,657.47	-6,141.97	-13.05	6,141.93	0.00	0.00	0.00
16,500.00	88.61	179.58	10,659.90	-6,241.94	-12.32	6,241.90	0.00	0.00	0.00
16,600.00	88.61	179.58	10,662.33	-6,341.90	-11.60	6,341.87	0.00	0.00	0.00
16,700.00	88.61	179.58	10,664.75	-6,441.87	-10.87	6,441.84	0.00	0.00	0.00
16,800.00	88.61	179.58	10,667.18	-6,541.84	-10.15	6,541.80	0.00	0.00	0.00
16,900.00	88.61	179.58	10,669.61	-6,641.81	-9.42	6,641.77	0.00	0.00	0.00
17,000.00	88.61	179.58	10,672.03	-6,741.78	-8.70	6,741.74	0.00	0.00	0.00
17,100.00	88.61	179.58	10,674.46	-6,841.74	-7.97	6,841.71	0.00	0.00	0.00
17,200.00	88.61	179.58	10,676.89	-6,941.71	-7.25	6,941.68	0.00	0.00	0.00
17,300.00	88.61	179.58	10,679.31	-7,041.68	-6.52	7,041.65	0.00	0.00	0.00
17,400.00	88.61	179.58	10,681.74	-7,141.65	-5.80	7,141.62	0.00	0.00	0.00
17,500.00	88.61	179.58	10,684.17	-7,241.62	-5.07	7,241.59	0.00	0.00	0.00
17,600.00	88.61	179.58	10,686.59	-7,341.58	-4.35	7,341.56	0.00	0.00	0.00
17,700.00	88.61	179.58	10,689.02	-7,441.55	-3.62	7,441.53	0.00	0.00	0.00
17,800.00	88.61	179.58	10,691.45	-7,541.52	-2.90	7,541.50	0.00	0.00	0.00
17,900.00	88.61	179.58	10,693.87	-7,641.49	-2.17	7,641.47	0.00	0.00	0.00
18,000.00	88.61	179.58	10,696.30	-7,741.46	-1.45	7,741.44	0.00	0.00	0.00
18,100.00	88.61	179.58	10,698.72	-7,841.42	-0.72	7,841.40	0.00	0.00	0.00
18,200.00	88.61	179.58	10,701.15	-7,941.39	0.00	7,941.37	0.00	0.00	0.00
18,300.00	88.61	179.58	10,703.58	-8,041.36	0.73	8,041.34	0.00	0.00	0.00
18,400.00	88.61	179.58	10,706.00	-8,141.33	1.45	8,141.31	0.00	0.00	0.00
18,500.00	88.61	179.58	10,708.43	-8,241.29	2.18	8,241.28	0.00	0.00	0.00
18,600.00	88.61	179.58	10,710.86	-8,341.26	2.90	8,341.25	0.00	0.00	0.00
18,700.00	88.61	179.58	10,713.28	-8,441.23	3.63	8,441.22	0.00	0.00	0.00
18,800.00	88.61	179.58	10,715.71	-8,541.20	4.35	8,541.19	0.00	0.00	0.00
18,900.00	88.61	179.58	10,718.14	-8,641.17	5.08	8,641.16	0.00	0.00	0.00
19,000.00	88.61	179.58	10,720.56	-8,741.13	5.80	8,741.13	0.00	0.00	0.00
19,100.00	88.61	179.58	10,722.99	-8,841.10	6.52	8,841.10	0.00	0.00	0.00
19,200.00	88.61	179.58	10,725.42	-8,941.07	7.25	8,941.07	0.00	0.00	0.00
19,300.00	88.61	179.58	10,727.84	-9,041.04	7.97	9,041.04	0.00	0.00	0.00
19,400.00	88.61	179.58	10,730.27	-9,141.01	8.70	9,141.00	0.00	0.00	0.00
19,500.00	88.61	179.58	10,732.69	-9,240.97	9.42	9,240.97	0.00	0.00	0.00
19,600.00	88.61	179.58	10,735.12	-9,340.94	10.15	9,340.94	0.00	0.00	0.00
19,700.00	88.61	179.58	10,737.55	-9,440.91	10.87	9,440.91	0.00	0.00	0.00
19,800.00	88.61	179.58	10,739.97	-9,540.88	11.60	9,540.88	0.00	0.00	0.00
19,900.00	88.61	179.58	10,742.40	-9,640.85	12.32	9,640.85	0.00	0.00	0.00
20,000.00	88.61	179.58	10,744.83	-9,740.81	13.05	9,740.82	0.00	0.00	0.00
20,100.00	88.61	179.58	10,747.25	-9,840.78	13.77	9,840.79	0.00	0.00	0.00
20,200.00	88.61	179.58	10,749.68	-9,940.75	14.50	9,940.76	0.00	0.00	0.00
20,300.00	88.61	179.58	10,752.11	-10,040.72	15.22	10,040.73	0.00	0.00	0.00
20,400.00	88.61	179.58	10,754.53	-10,140.69	15.95	10,140.70	0.00	0.00	0.00
20,500.00	88.61	179.58	10,756.96	-10,240.65	16.67	10,240.67	0.00	0.00	0.00
20,600.00	88.61	179.58	10,759.39	-10,340.62	17.40	10,340.64	0.00	0.00	0.00
20,700.00	88.61	179.58	10,761.81	-10,440.59	18.12	10,440.60	0.00	0.00	0.00
20,800.00	88.61	179.58	10,764.24	-10,540.56	18.85	10,540.57	0.00	0.00	0.00
20,900.00	88.61	179.58	10,766.67	-10,640.53	19.57	10,640.54	0.00	0.00	0.00

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Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
21,000.00	88.61	179.58	10,769.09	-10,740.49	20.30	10,740.51	0.00	0.00	0.00
21,100.00	88.61	179.58	10,771.52	-10,840.46	21.02	10,840.48	0.00	0.00	0.00
21,200.00	88.61	179.58	10,773.94	-10,940.43	21.75	10,940.45	0.00	0.00	0.00
21,300.00	88.61	179.58	10,776.37	-11,040.40	22.47	11,040.42	0.00	0.00	0.00
21,367.14	88.61	179.58	10,778.00	-11,107.51	22.96	11,107.53	0.00	0.00	0.00
PBHL									

Design Targets
Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP v2 - Anchor 19-35-28 - plan misses target center by 0.96usft at 10955.88usft MD (10503.32 TVD, -700.48 N, -52.95 E) - Point	0.00	0.00	10,503.32	-700.49	-53.91	597,117.27	811,128.45	32° 38' 18.473 N	103° 27' 24.815 W
5000'vs v2 - Anchor 1 - plan hits target center - Point	0.00	0.00	10,603.00	-5,000.06	-21.33	592,817.70	811,161.03	32° 37' 35.929 N	103° 27' 24.849 W
6000'vs v2 - Anchor 1 - plan hits target center - Point	0.00	0.00	10,653.00	-6,000.04	-14.08	591,817.72	811,168.29	32° 37' 26.034 N	103° 27' 24.861 W
PBHL v2 - Anchor 19-35-28 - plan hits target center - Point	0.00	0.00	10,778.00	-11,107.51	22.96	586,710.24	811,205.32	32° 36' 35.496 N	103° 27' 24.920 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
4,000.00	4,000.00	9 5/8"	9-5/8	12-1/4

Database: 5000.1 Conroe DB
Company: Catena Resources Operating, LLC
Project: Lea County, New Mexico (NAD 83)
Site: Anchor 19-35-28
Well: Anchor 19-35-28 2H
Wellbore: Wellbore #1
Design: Design #2

Local Co-ordinate Reference: Well Anchor 19-35-28 2H
TVD Reference: Well @ 3772.00usft (25' KB)
MD Reference: Well @ 3772.00usft (25' KB)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,776.00	1,776.00	Rustler				
1,858.00	1,858.00	Salt				
3,228.00	3,228.00	Base of Salt				
3,431.00	3,431.00	Yates				
3,880.00	3,880.00	Seven Rivers				
4,577.00	4,577.00	Queen				
5,157.00	5,157.00	Capitan Reef				
5,869.00	5,869.00	Delaware Cherry Canyon				
7,792.00	7,792.00	Bone Spring Lime				
8,729.00	8,729.00	1st Bone Spring Carbonate				
9,354.00	9,354.00	1st Bone Spring Sand				
9,581.00	9,581.00	2nd Bone Spring Carbonate				
9,682.00	9,682.00	2nd Bone Spring Sand				
10,036.73	10,036.00	2nd Bone Spring 'N' Sand				
10,453.01	10,381.00	2nd Bone Spring Dolomitic				
10,487.44	10,401.00	2nd Bone Spring DLR Target				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
9,923.99	9,923.99	0.00	0.00	KOP, 10.00°/100' Build	
10,423.99	10,362.90	-202.26	-31.31	Begin 10.00°/100' Build & Turn	
10,819.70	10,500.16	-564.34	-53.95	Begin 88.67° Lateral	
15,256.72	10,603.00	-5,000.06	-21.33	Begin 2.00°/100' Drop	
15,336.63	10,605.97	-5,079.90	-20.74	Hold 87.07° Inc	
16,257.99	10,653.00	-6,000.04	-14.08	Begin 2.00°/100' Build	
16,334.78	10,655.89	-6,076.77	-13.52	Hold 88.61° Inc	
21,367.14	10,778.00	-11,107.51	22.96	PBHL	