



Project: Lea Co., NM (NAD 83)
Site: Sec 22-12S-38E
Rig:
Well: Trinity 22 State Com #1H
Wellbore: HZ [TBD]
Design: Plan #1 (06.22.18 RB)



Total Azimuth to Grid North
+ 5.93°
Gravity = 0.9986°
Magnetic Field
Strength: 48362.1nT
Dip Angle: 60.93°
Date: 8/15/2018
Model: HDGM_FILE

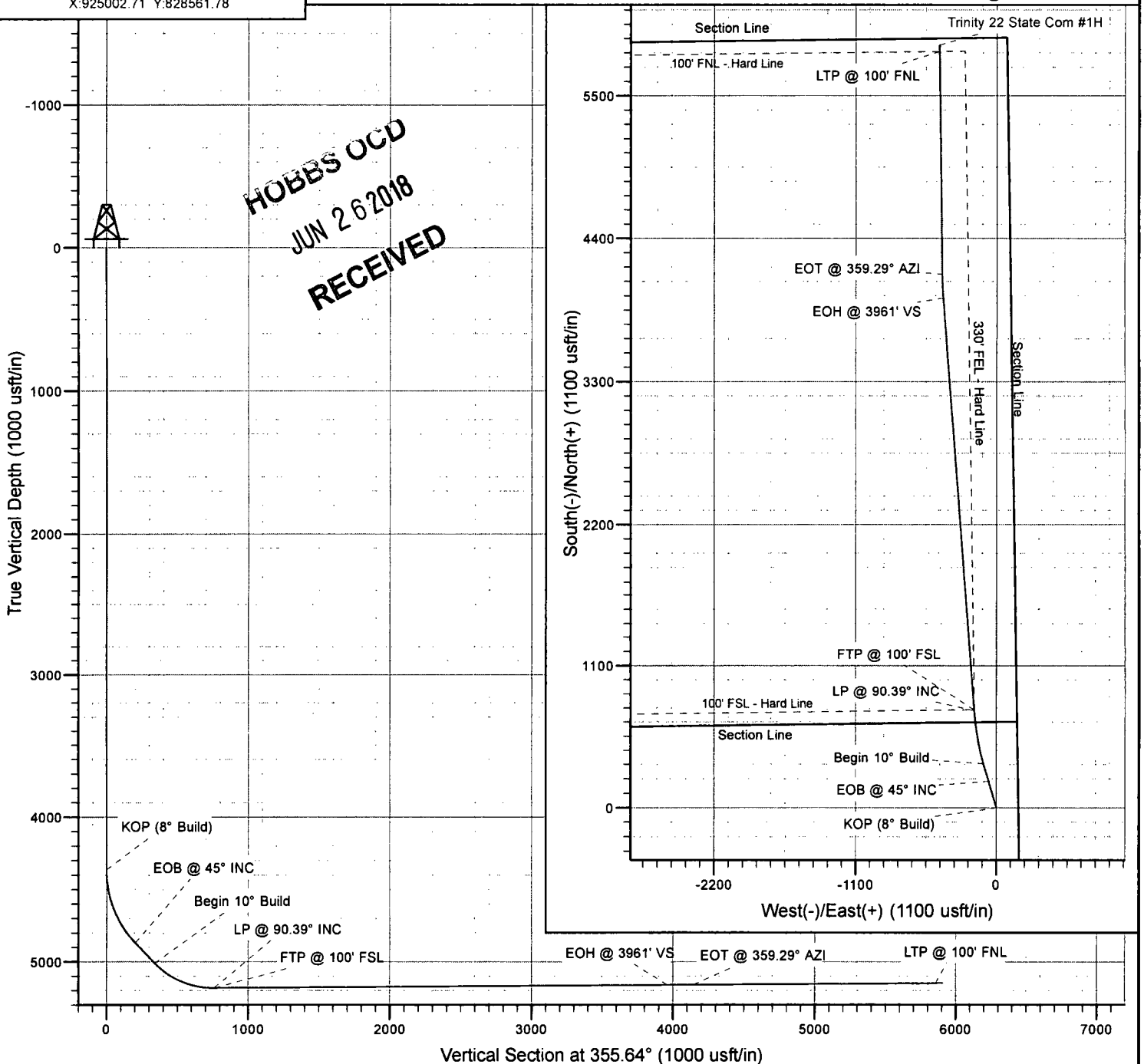
TARGET LINE
90.39° INC @ 5185' TVD @ 766' VS
10' Up / 10' Down
30' Left / 30' Right

Planned Bottom Hole Location
50' FNL / 528' FEL (Sec 22)
X:925002.71 Y:828561.78

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	822671.90	925452.20	33.255132	-103.076829

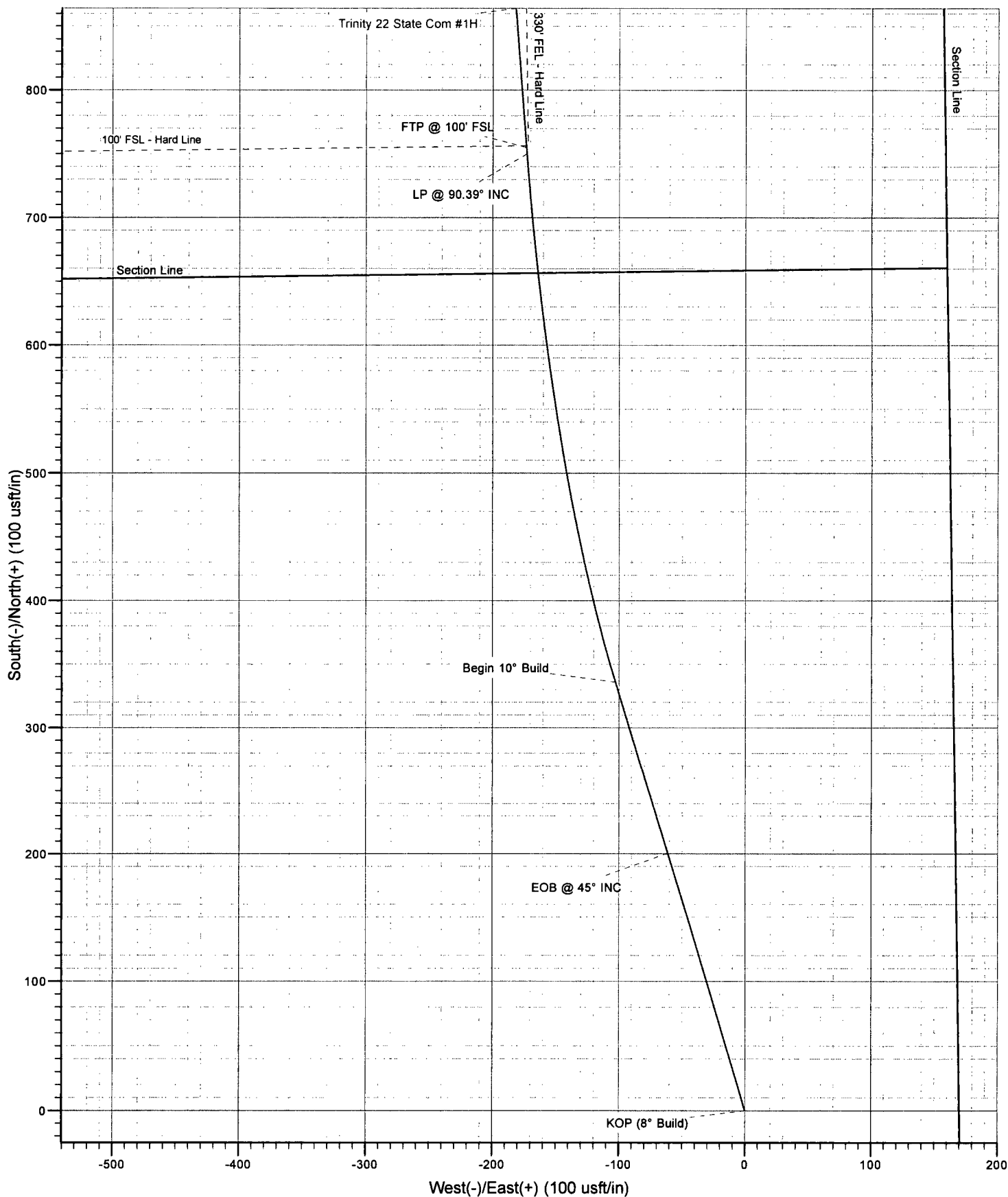
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Annotation
4363.50	0.00	0.00	4363.50	0.00	0.00	0.00	KOP (8° Build)
4926.00	45.00	343.00	4869.93	200.60	-61.33	204.69	EOB @ 45° INC
5126.00	45.00	343.00	5011.35	335.85	-102.68	342.68	Begin 10° Build
5593.41	90.39	355.58	5184.74	750.12	-172.93	761.10	LP @ 90.39° INC
5598.46	90.39	355.58	5184.71	755.15	-173.31	766.15	FTP @ 100' FSL
8792.96	90.39	355.58	5163.00	3940.10	-419.24	3960.57	EOH @ 3961' VS
8978.33	90.39	359.29	5161.74	4125.25	-427.52	4145.82	EOT @ 359.29° AZI
10693.14	90.39	359.29	5150.00	5839.89	-448.71	5857.10	LTP @ 100' FNL
10743.14	90.39	359.29	5149.66	5889.88	-449.33	5907.00	PBHL @ 50' FNL





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Well: Trinity 22 State Com #1H
Wellbore: HZ [TBD]
Design: Plan #1 (06.22.18 RB)
Gravity: 0.9986g



Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Trinity 22 State Com #1H
Company:	Manzano LLC	TVD Reference:	17' KB @ 3821.00usft
Project:	Lea Co., NM (NAD 83)	MD Reference:	17' KB @ 3821.00usft
Site:	Sec 22-12S-38E	North Reference:	Grid
Well:	Trinity 22 State Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ [TBD]		
Design:	Plan #1 (06.22.18 RB)		

Project	Lea Co., NM (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	Sec 22-12S-38E, 0.9986g		
Site Position:		Northing:	8,259,458.69 usft
From:	Map	Easting:	922,943.56 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	53.652625
		Longitude:	-102.573973
		Grid Convergence:	1.42 °

Well	Trinity 22 State Com #1H		
Well Position	+N-S	0.00 usft	Northing: 822,671.90 usft
	+E-W	0.00 usft	Easting: 925,452.20 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	33.255132
		Longitude:	-103.076829
		Ground Level:	3,804.00 usft

Wellbore	HZ [TBD]		
Magnetics	Model Name	Sample Date	Declination (°)
	HDGM_FILE	8/15/2018	6.62
			Dip Angle (°)
			60.93
			Field Strength (nT)
			48,362.10000000

Design	Plan #1 (06.22.18 RB)		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction (°)
			355.64

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	0.00	
4,363.50	0.00	0.00	4,363.50	0.00	0.00	0.00	0.00	0.00	0.00	
4,926.00	45.00	343.00	4,869.93	200.60	-61.33	8.00	8.00	0.00	343.00	
5,126.00	45.00	343.00	5,011.35	335.85	-102.68	0.00	0.00	0.00	0.00	
5,593.41	90.39	355.58	5,184.74	750.12	-172.93	10.00	9.71	2.69	17.41	
8,792.96	90.39	355.58	5,163.00	3,940.10	-419.24	0.00	0.00	0.00	0.00	
8,978.33	90.39	359.29	5,161.74	4,125.24	-427.52	2.00	0.00	2.00	89.94	
10,693.14	90.39	359.29	5,150.00	5,839.89	-448.71	0.00	0.00	0.00	0.00	LTP - Trinity 22 #1H
10,743.14	90.39	359.29	5,149.66	5,889.89	-449.33	0.00	0.00	0.00	0.00	



Cathedral Energy Services
Planning Report



Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Trinity 22 State Com #1H
Company:	Manzano LLC	TVD Reference:	17' KB @ 3821.00usft
Project:	Lea Co., NM (NAD 83)	MD Reference:	17' KB @ 3821.00usft
Site:	Sec 22-12S-38E	North Reference:	Grid
Well:	Trinity 22 State Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ [TBD]		
Design:	Plan #1 (06.22.18 RB)		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
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	
200.00	0.00	0.00	200.00	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	
400.00	0.00	0.00	400.00	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	
600.00	0.00	0.00	600.00	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	
800.00	0.00	0.00	800.00	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	
1,000.00	0.00	0.00	1,000.00	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	
1,200.00	0.00	0.00	1,200.00	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	
1,400.00	0.00	0.00	1,400.00	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	
1,600.00	0.00	0.00	1,600.00	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	
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	
1,900.00	0.00	0.00	1,900.00	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	
2,100.00	0.00	0.00	2,100.00	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	
2,300.00	0.00	0.00	2,300.00	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	
2,500.00	0.00	0.00	2,500.00	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	
2,700.00	0.00	0.00	2,700.00	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	
2,900.00	0.00	0.00	2,900.00	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	
3,100.00	0.00	0.00	3,100.00	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	
3,300.00	0.00	0.00	3,300.00	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	
3,500.00	0.00	0.00	3,500.00	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	
3,700.00	0.00	0.00	3,700.00	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	
3,900.00	0.00	0.00	3,900.00	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	
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	
4,200.00	0.00	0.00	4,200.00	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	
4,363.50	0.00	0.00	4,363.50	0.00	0.00	0.00	0.00	0.00	KOP (8° Build)
4,400.00	2.92	343.00	4,399.98	0.89	-0.27	0.91	8.00	8.00	
4,450.00	6.92	343.00	4,449.79	4.99	-1.53	5.09	8.00	8.00	
4,500.00	10.92	343.00	4,499.18	12.40	-3.79	12.65	8.00	8.00	
4,550.00	14.92	343.00	4,547.90	23.09	-7.06	23.56	8.00	8.00	
4,600.00	18.92	343.00	4,595.73	37.00	-11.31	37.76	8.00	8.00	
4,650.00	22.92	343.00	4,642.42	54.07	-16.53	55.17	8.00	8.00	
4,700.00	26.92	343.00	4,687.76	74.22	-22.69	75.73	8.00	8.00	



Cathedral Energy Services
Planning Report



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Company:	Manzano LLC	TVD Reference:	17' KB @ 3821.00usft
Project:	Lea Co., NM (NAD 83)	MD Reference:	17' KB @ 3821.00usft
Site:	Sec 22-12S-38E	North Reference:	Grid
Well:	Trinity 22 State Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ [TBD]		
Design:	Plan #1 (06.22.18 RB)		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,750.00	30.92	343.00	4,731.51	97.33	-29.76	99.32	8.00	8.00	
4,800.00	34.92	343.00	4,773.47	123.32	-37.70	125.83	8.00	8.00	
4,850.00	38.92	343.00	4,813.44	152.03	-46.48	155.13	8.00	8.00	
4,900.00	42.92	343.00	4,851.21	183.34	-56.05	187.08	8.00	8.00	
4,926.00	45.00	343.00	4,869.93	200.60	-61.33	204.69	8.00	8.00	EOB @ 45° INC
5,000.00	45.00	343.00	4,922.25	250.64	-76.63	255.75	0.00	0.00	
5,100.00	45.00	343.00	4,992.96	318.26	-97.30	324.74	0.00	0.00	
5,126.00	45.00	343.00	5,011.35	335.85	-102.68	342.68	0.00	0.00	Begin 10° Build
5,150.00	47.29	343.98	5,027.98	352.44	-107.59	359.60	10.00	9.56	
5,200.00	52.10	345.80	5,060.31	389.24	-117.51	397.05	10.00	9.61	
5,250.00	56.93	347.40	5,089.33	428.84	-126.93	437.25	10.00	9.66	
5,300.00	61.77	348.83	5,114.81	470.92	-135.77	479.88	10.00	9.69	
5,350.00	66.63	350.13	5,136.57	515.16	-143.98	524.62	10.00	9.72	
5,400.00	71.50	351.35	5,154.43	561.24	-151.48	571.14	10.00	9.74	
5,450.00	76.38	352.49	5,168.25	608.80	-158.22	619.07	10.00	9.75	
5,500.00	81.26	353.59	5,177.95	657.47	-164.16	668.06	10.00	9.76	
5,550.00	86.15	354.67	5,183.43	706.90	-169.24	717.72	10.00	9.77	
5,593.41	90.39	355.58	5,184.74	750.12	-172.93	761.10	10.00	9.77	LP @ 90.39° INC
5,598.46	90.39	355.58	5,184.71	755.15	-173.31	766.15	0.00	0.00	FTP @ 100' FSL
5,600.00	90.39	355.58	5,184.70	756.69	-173.43	767.69	0.00	0.00	
5,700.00	90.39	355.58	5,184.02	856.39	-181.13	867.69	0.00	0.00	
5,800.00	90.39	355.58	5,183.34	956.09	-188.83	967.68	0.00	0.00	
5,900.00	90.39	355.58	5,182.66	1,055.79	-196.53	1,067.68	0.00	0.00	
6,000.00	90.39	355.58	5,181.98	1,155.49	-204.23	1,167.68	0.00	0.00	
6,100.00	90.39	355.58	5,181.30	1,255.19	-211.92	1,267.68	0.00	0.00	
6,200.00	90.39	355.58	5,180.62	1,354.89	-219.62	1,367.68	0.00	0.00	
6,300.00	90.39	355.58	5,179.94	1,454.60	-227.32	1,467.67	0.00	0.00	
6,400.00	90.39	355.58	5,179.26	1,554.30	-235.02	1,567.67	0.00	0.00	
6,500.00	90.39	355.58	5,178.58	1,654.00	-242.72	1,667.67	0.00	0.00	
6,600.00	90.39	355.58	5,177.90	1,753.70	-250.42	1,767.67	0.00	0.00	
6,700.00	90.39	355.58	5,177.22	1,853.40	-258.12	1,867.66	0.00	0.00	
6,800.00	90.39	355.58	5,176.54	1,953.10	-265.81	1,967.66	0.00	0.00	
6,900.00	90.39	355.58	5,175.86	2,052.80	-273.51	2,067.66	0.00	0.00	
7,000.00	90.39	355.58	5,175.18	2,152.50	-281.21	2,167.66	0.00	0.00	
7,100.00	90.39	355.58	5,174.50	2,252.20	-288.91	2,267.65	0.00	0.00	
7,200.00	90.39	355.58	5,173.82	2,351.90	-296.61	2,367.65	0.00	0.00	
7,300.00	90.39	355.58	5,173.14	2,451.60	-304.31	2,467.65	0.00	0.00	
7,400.00	90.39	355.58	5,172.46	2,551.31	-312.00	2,567.65	0.00	0.00	
7,500.00	90.39	355.58	5,171.79	2,651.01	-319.70	2,667.64	0.00	0.00	
7,600.00	90.39	355.58	5,171.11	2,750.71	-327.40	2,767.64	0.00	0.00	
7,700.00	90.39	355.58	5,170.43	2,850.41	-335.10	2,867.64	0.00	0.00	
7,800.00	90.39	355.58	5,169.75	2,950.11	-342.80	2,967.64	0.00	0.00	
7,900.00	90.39	355.58	5,169.07	3,049.81	-350.50	3,067.64	0.00	0.00	
8,000.00	90.39	355.58	5,168.39	3,149.51	-358.19	3,167.63	0.00	0.00	
8,100.00	90.39	355.58	5,167.71	3,249.21	-365.89	3,267.63	0.00	0.00	
8,200.00	90.39	355.58	5,167.03	3,348.91	-373.59	3,367.63	0.00	0.00	
8,300.00	90.39	355.58	5,166.35	3,448.61	-381.29	3,467.63	0.00	0.00	
8,400.00	90.39	355.58	5,165.67	3,548.31	-388.99	3,567.62	0.00	0.00	
8,500.00	90.39	355.58	5,164.99	3,648.02	-396.69	3,667.62	0.00	0.00	
8,600.00	90.39	355.58	5,164.31	3,747.72	-404.39	3,767.62	0.00	0.00	
8,700.00	90.39	355.58	5,163.63	3,847.42	-412.08	3,867.62	0.00	0.00	
8,792.96	90.39	355.58	5,163.00	3,940.10	-419.24	3,960.57	0.00	0.00	EOH @ 3961' VS



Cathedral Energy Services
Planning Report



Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Trinity 22 State Com #1H
Company:	Manzano LLC	TVD Reference:	17' KB @ 3821.00usft
Project:	Lea Co., NM (NAD 83)	MD Reference:	17' KB @ 3821.00usft
Site:	Sec 22-12S-38E	North Reference:	Grid
Well:	Trinity 22 State Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ [TBD]		
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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 (°/100u)	Comments / Formations
8,800.00	90.39	355.73	5,162.95	3,947.12	-419.77	3,967.61	2.00	0.00	
8,900.00	90.39	357.73	5,162.27	4,046.95	-425.48	4,067.59	2.00	0.00	
8,978.33	90.39	359.29	5,161.74	4,125.25	-427.52	4,145.82	2.00	0.00	EOT @ 359.29° AZI
9,000.00	90.39	359.29	5,161.59	4,146.92	-427.79	4,167.44	0.00	0.00	
9,100.00	90.39	359.29	5,160.90	4,246.91	-429.03	4,267.24	0.00	0.00	
9,200.00	90.39	359.29	5,160.22	4,346.90	-430.26	4,367.03	0.00	0.00	
9,300.00	90.39	359.29	5,159.53	4,446.89	-431.50	4,466.82	0.00	0.00	
9,400.00	90.39	359.29	5,158.85	4,546.88	-432.73	4,566.62	0.00	0.00	
9,500.00	90.39	359.29	5,158.17	4,646.87	-433.97	4,666.41	0.00	0.00	
9,600.00	90.39	359.29	5,157.48	4,746.86	-435.20	4,766.21	0.00	0.00	
9,700.00	90.39	359.29	5,156.80	4,846.85	-436.44	4,866.00	0.00	0.00	
9,800.00	90.39	359.29	5,156.11	4,946.84	-437.68	4,965.80	0.00	0.00	
9,900.00	90.39	359.29	5,155.43	5,046.83	-438.91	5,065.59	0.00	0.00	
10,000.00	90.39	359.29	5,154.74	5,146.82	-440.15	5,165.38	0.00	0.00	
10,100.00	90.39	359.29	5,154.06	5,246.81	-441.38	5,265.18	0.00	0.00	
10,200.00	90.39	359.29	5,153.37	5,346.80	-442.62	5,364.97	0.00	0.00	
10,300.00	90.39	359.29	5,152.69	5,446.79	-443.85	5,464.77	0.00	0.00	
10,400.00	90.39	359.29	5,152.01	5,546.78	-445.09	5,564.56	0.00	0.00	
10,500.00	90.39	359.29	5,151.32	5,646.77	-446.32	5,664.36	0.00	0.00	
10,600.00	90.39	359.29	5,150.64	5,746.76	-447.56	5,764.15	0.00	0.00	
10,693.14	90.39	359.29	5,150.00	5,839.89	-448.71	5,857.10	0.00	0.00	LTP @ 100' FNL
10,700.00	90.39	359.29	5,149.95	5,846.75	-448.79	5,863.94	0.00	0.00	
10,743.14	90.39	359.29	5,149.66	5,889.88	-449.33	5,907.00	0.00	0.00	PBHL @ 50' FNL

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP - Trinity 22 #1H - hit/miss target - Shape	0.00	0.00	5,185.00	756.47	-171.83	823,428.37	925,280.37	33.257216	-103.077361
- plan misses target center by 1.61usft at 5599.66usft MD (5184.70 TVD, 756.35 N, -173.41 E)									
- Point									
LTP - Trinity 22 #1H - plan hits target center - Point	0.00	0.00	5,150.00	5,839.89	-448.71	828,511.79	925,003.49	33.271194	-103.078067
PBHL - Trinity 22 #1H - plan misses target center by 0.16usft at 10743.14usft MD (5149.66 TVD, 5889.88 N, -449.33 E)	0.00	0.00	5,149.65	5,889.88	-449.49	828,561.78	925,002.71	33.271331	-103.078067
- Point									
LT1 - Trinity 22 #1H - plan misses target center by 0.29usft at 8792.96usft MD (5163.00 TVD, 3940.10 N, -419.24 E)	0.00	0.01	5,163.29	3,940.10	-419.24	826,612.00	925,032.96	33.265972	-103.078045
- Point									



Cathedral Energy Services
Planning Report



Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Trinity 22 State Com #1H
Company:	Manzano LLC	TVD Reference:	17' KB @ 3821.00usft
Project:	Lea Co., NM (NAD 83)	MD Reference:	17' KB @ 3821.00usft
Site:	Sec 22-12S-38E	North Reference:	Grid
Well:	Trinity 22 State Com #1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ [TBD]		
Design:	Plan #1 (06.22.18 RB)		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,363.50	4,363.50	0.00	0.00	KOP (8° Build)
4,926.00	4,869.93	200.60	-61.33	EOB @ 45° INC
5,126.00	5,011.35	335.85	-102.68	Begin 10° Build
5,593.41	5,184.74	750.12	-172.93	LP @ 90.39° INC
5,598.46	5,184.71	755.15	-173.31	FTP @ 100' FSL
8,792.96	5,163.00	3,940.10	-419.24	EOH @ 3961' VS
8,978.33	5,161.74	4,125.25	-427.52	EOT @ 359.29° AZI
10,693.14	5,150.00	5,839.89	-448.71	LTP @ 100' FNL
10,743.14	5,149.66	5,889.88	-449.33	PBHL @ 50' FNL