

Nearburg Producing Co.

Project: Eddy County, NM (NAD83 NME) (10)
Well: Cottonwood North 20 State #2H
Wellbore: Lateral #1
Design: Design #1

M3P
DIRECTIONAL
SERVICES



Azimuths to Grid North
True North: -0.12°
Magnetic North: 7.20°
Magnetic Field
Strength: 48034.9nT
Dip Angle: 59.82°
Date: 7/30/2015
Model: IGRF2010

30-015-43263

WELL DETAILS

	+N/-S	+E/-W	Northing	Ground Level: 3092.00	Easting	Latitude	Longitude
	0.00	0.00	376464.10	610099.60	32° 2' 5.228 N	104° 6' 41.141 W	

SECTION DETAILS

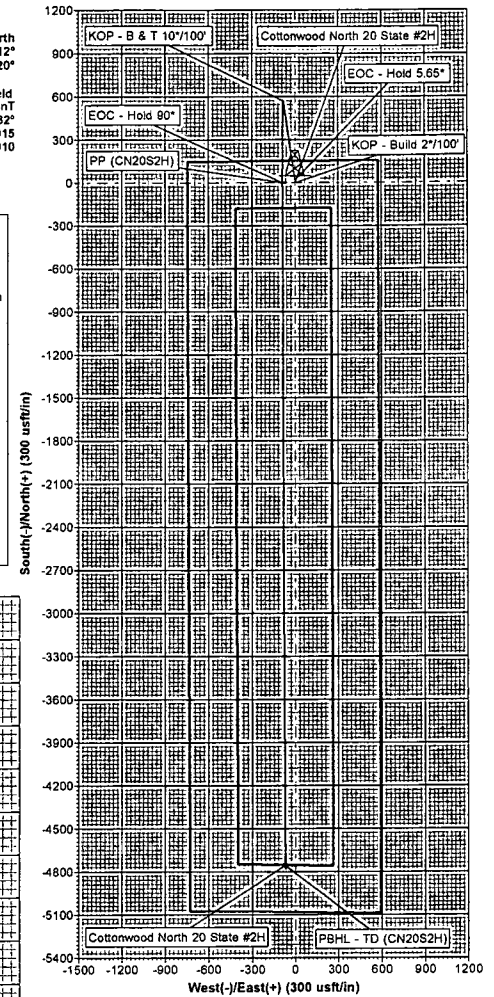
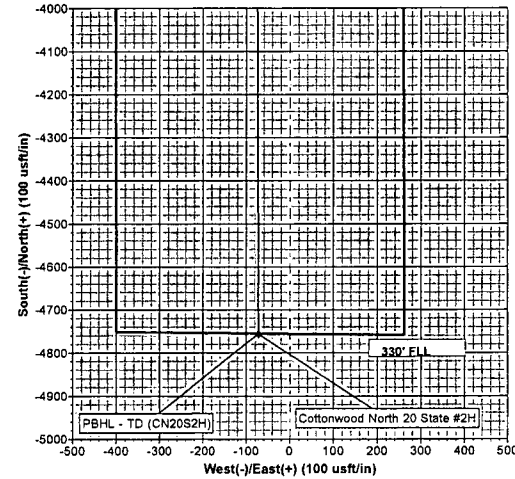
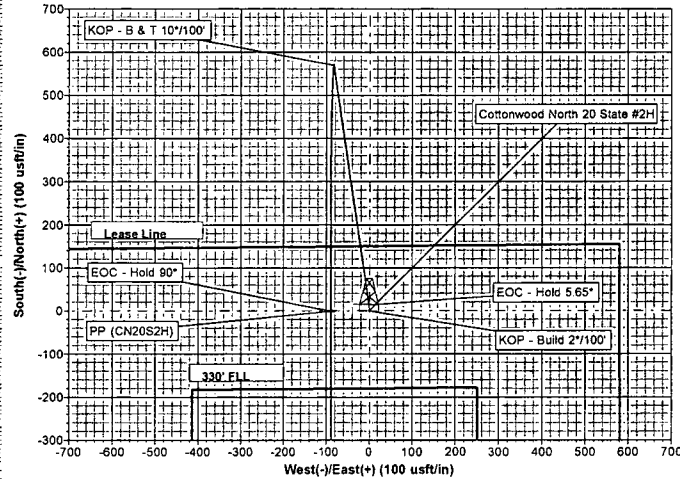
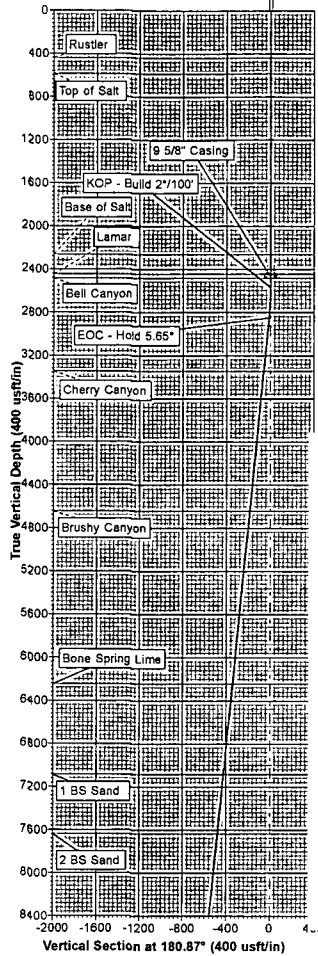
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	2467.00	0.00	0.00	2467.00	0.00	0.00	0.00	0.00	0.00		
3	2567.00	0.00	0.00	2567.00	0.00	0.00	0.00	0.00	0.00		
4	2850.41	5.67	351.68	2849.95	13.85	-2.03	2.00	351.88	-13.83		KOP - Build 2°/100'
5	8536.34	5.67	351.68	8508.06	569.54	-83.28	0.00	0.00	-568.21		EOC - Hold 5.65°
6	9492.46	90.00	179.79	9137.00	-0.70	-90.00	10.00	-171.85	2.07	PP (CN20S2H)	KOP - B & T 10°/100'
7	14247.69	90.00	179.79	9137.00	-4755.90	-72.60	0.00	0.00	4756.45	PBHL - TD (CN20S2H)	EOC - Hold 90°

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL - TD (CN20S2H)	9137.00	-4755.90	-72.60	371708.20	610027.00	32° 1' 18.184 N	104° 6' 42.096 W	Point
PP (CN20S2H)	9137.00	-0.70	-90.00	376463.40	610009.60	32° 2' 5.223 N	104° 6' 42.186 W	Point

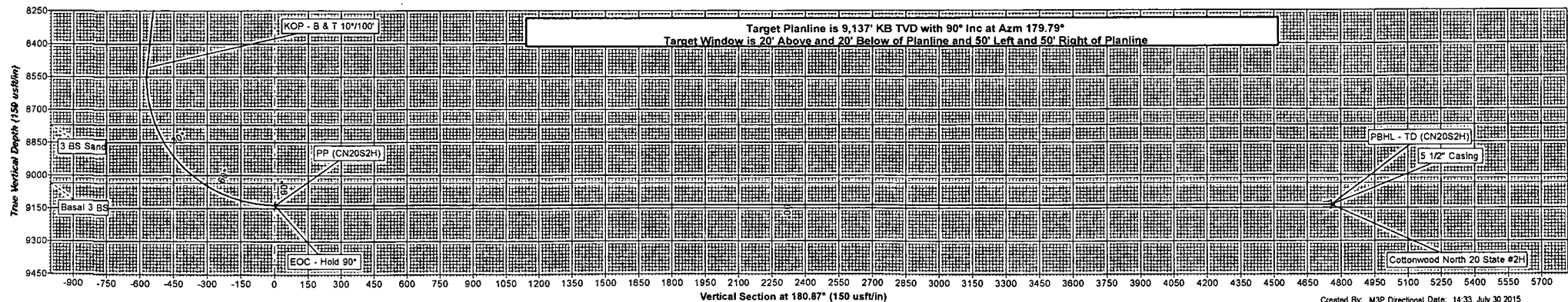
Map System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone Name: New Mexico Eastern Zone
Local Origin: Site Cottonwood North 20 State 2H, Grid North
Latitude: 32° 2' 5.228 N
Longitude: 104° 6' 41.141 W
Grid East: 610099.60
Grid North: 376464.10
Scale Factor: 1.000

Geomagnetic Model: IGRF2010
Sample Date: 30-Jul-15
Magnetic Declination: 7.31°
Dip Angle from Horizontal: 59.82°
Magnetic Field Strength: 48035
To convert a Magnetic Direction to a Grid Direction, Add 7.20°
To convert a Magnetic Direction to a True Direction, Add 7.31° East
To convert a True Direction to a Grid Direction, Subtract 0.12°



LEGEND

Design #1



Target Planline is 9,137' KB TVD with 90° Inc at Azm 179.79°
Target Window is 20' Above and 20' Below of Planline and 50' Left and 50' Right of Planline

Nearburg Producing Co.

Eddy County, NM (NAD83 NME) (10)

Cottonwood North 20 State 2H

Cottonwood North 20 State #2H

Lateral #1

Plan: Design #1

Standard Planning Report

30 July, 2015

M3P
DIRECTIONAL
SERVICES

M3P Directional Services

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Cottonwood North 20 State 2H
Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3112.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83 NME) (10)	MD Reference:	WELL @ 3112.00usft (Original Well Elev)
Site:	Cottonwood North 20 State 2H	North Reference:	Grid
Well:	Cottonwood North 20 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

Project	Eddy County, NM (NAD83 NME) (10)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Cottonwood North 20 State 2H, Sec 20, T-26S, R-28E		
Site Position:	Northing:	376,464.10 usft	Latitude: 32° 2' 5.228 N
From: Map	Easting:	610,099.60 usft	Longitude: 104° 6' 41.141 W
Position Uncertainty:	0.00 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.12 °

Well	Cottonwood North 20 State #2H		
Well Position	+N/-S	0.00 usft	Northing: 376,464.10 usft
	+E/-W	0.00 usft	Easting: 610,099.60 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	3,112.00 usft
		Ground Level:	3,092.00 usft

Wellbore	Lateral #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	7/30/2015	7.31
			59.82
			48,035

Design	Design #1		
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
			180.87

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	
2,467.00	0.00	0.00	2,467.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,567.00	0.00	0.00	2,567.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,850.41	5.67	351.68	2,849.95	13.86	-2.03	2.00	2.00	0.00	351.68	
8,536.34	5.67	351.68	8,508.08	569.54	-83.28	0.00	0.00	0.00	0.00	
9,492.46	90.00	179.79	9,137.00	-0.70	-90.00	10.00	8.82	-17.98	-171.85	PP (CN20S2H)
14,247.69	90.00	179.79	9,137.00	-4,755.90	-72.60	0.00	0.00	0.00	0.00	PBHL - TD (CN20S2H)

M3P Directional Services

Planning Report



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Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3112.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83 NME) (10)	MD Reference:	WELL @ 3112.00usft (Original Well Elev)
Site:	Cottonwood North 20 State 2H	North Reference:	Grid
Well:	Cottonwood North 20 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

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
442.00	0.00	0.00	442.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
587.00	0.00	0.00	587.00	0.00	0.00	0.00	0.00	0.00	0.00
Top of Salt									
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
1,800.00	0.00	0.00	1,800.00	0.00	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	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
2,267.00	0.00	0.00	2,267.00	0.00	0.00	0.00	0.00	0.00	0.00
Base of Salt									
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
2,447.00	0.00	0.00	2,447.00	0.00	0.00	0.00	0.00	0.00	0.00
Lamar									
2,467.00	0.00	0.00	2,467.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8" Casing									
2,487.00	0.00	0.00	2,487.00	0.00	0.00	0.00	0.00	0.00	0.00
Bell Canyon									
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,567.00	0.00	0.00	2,567.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Build 2°/100'									
2,600.00	0.66	351.68	2,600.00	0.19	-0.03	-0.19	2.00	2.00	0.00
2,700.00	2.66	351.68	2,699.95	3.05	-0.45	-3.05	2.00	2.00	0.00
2,800.00	4.66	351.68	2,799.74	9.37	-1.37	-9.35	2.00	2.00	0.00
2,850.41	5.67	351.68	2,849.95	13.86	-2.03	-13.83	2.00	2.00	0.00
EOC - Hold 5.65°									
2,900.00	5.67	351.68	2,899.30	18.71	-2.74	-18.66	0.00	0.00	0.00
3,000.00	5.67	351.68	2,998.81	28.48	-4.16	-28.41	0.00	0.00	0.00
3,100.00	5.67	351.68	3,098.32	38.25	-5.59	-38.16	0.00	0.00	0.00
3,200.00	5.67	351.68	3,197.83	48.02	-7.02	-47.91	0.00	0.00	0.00
3,300.00	5.67	351.68	3,297.34	57.80	-8.45	-57.66	0.00	0.00	0.00
3,349.90	5.67	351.68	3,347.00	62.67	-9.16	-62.53	0.00	0.00	0.00
Cherry Canyon									
3,400.00	5.67	351.68	3,396.85	67.57	-9.88	-67.41	0.00	0.00	0.00

M3P Directional Services

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Cottonwood North 20 State 2H
Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3112.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83 NME) (10)	MD Reference:	WELL @ 3112.00usft (Original Well Elev)
Site:	Cottonwood North 20 State 2H	North Reference:	Grid
Well:	Cottonwood North 20 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

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)
3,500.00	5.67	351.68	3,496.36	77.34	-11.31	-77.16	0.00	0.00	0.00
3,600.00	5.67	351.68	3,595.87	87.12	-12.74	-86.91	0.00	0.00	0.00
3,700.00	5.67	351.68	3,695.38	96.89	-14.17	-96.66	0.00	0.00	0.00
3,800.00	5.67	351.68	3,794.89	106.66	-15.60	-106.41	0.00	0.00	0.00
3,900.00	5.67	351.68	3,894.41	116.44	-17.03	-116.16	0.00	0.00	0.00
4,000.00	5.67	351.68	3,993.92	126.21	-18.45	-125.91	0.00	0.00	0.00
4,100.00	5.67	351.68	4,093.43	135.98	-19.88	-135.66	0.00	0.00	0.00
4,200.00	5.67	351.68	4,192.94	145.75	-21.31	-145.41	0.00	0.00	0.00
4,300.00	5.67	351.68	4,292.45	155.53	-22.74	-155.16	0.00	0.00	0.00
4,400.00	5.67	351.68	4,391.96	165.30	-24.17	-164.91	0.00	0.00	0.00
4,500.00	5.67	351.68	4,491.47	175.07	-25.60	-174.66	0.00	0.00	0.00
4,600.00	5.67	351.68	4,590.98	184.85	-27.03	-184.41	0.00	0.00	0.00
4,656.29	5.67	351.68	4,647.00	190.35	-27.83	-189.90	0.00	0.00	0.00
Brushy Canyon									
4,700.00	5.67	351.68	4,690.49	194.62	-28.46	-194.16	0.00	0.00	0.00
4,800.00	5.67	351.68	4,790.01	204.39	-29.89	-203.91	0.00	0.00	0.00
4,900.00	5.67	351.68	4,889.52	214.16	-31.32	-213.66	0.00	0.00	0.00
5,000.00	5.67	351.68	4,989.03	223.94	-32.75	-223.41	0.00	0.00	0.00
5,100.00	5.67	351.68	5,088.54	233.71	-34.17	-233.16	0.00	0.00	0.00
5,200.00	5.67	351.68	5,188.05	243.48	-35.60	-242.91	0.00	0.00	0.00
5,300.00	5.67	351.68	5,287.56	253.26	-37.03	-252.66	0.00	0.00	0.00
5,400.00	5.67	351.68	5,387.07	263.03	-38.46	-262.41	0.00	0.00	0.00
5,500.00	5.67	351.68	5,486.58	272.80	-39.89	-272.16	0.00	0.00	0.00
5,600.00	5.67	351.68	5,586.09	282.57	-41.32	-281.91	0.00	0.00	0.00
5,700.00	5.67	351.68	5,685.60	292.35	-42.75	-291.66	0.00	0.00	0.00
5,800.00	5.67	351.68	5,785.12	302.12	-44.18	-301.41	0.00	0.00	0.00
5,900.00	5.67	351.68	5,884.63	311.89	-45.61	-311.16	0.00	0.00	0.00
6,000.00	5.67	351.68	5,984.14	321.67	-47.04	-320.91	0.00	0.00	0.00
6,100.00	5.67	351.68	6,083.65	331.44	-48.46	-330.67	0.00	0.00	0.00
6,200.00	5.67	351.68	6,183.16	341.21	-49.89	-340.42	0.00	0.00	0.00
6,264.15	5.67	351.68	6,247.00	347.48	-50.81	-346.67	0.00	0.00	0.00
Bone Spring Lime									
6,300.00	5.67	351.68	6,282.67	350.98	-51.32	-350.17	0.00	0.00	0.00
6,400.00	5.67	351.68	6,382.18	360.76	-52.75	-359.92	0.00	0.00	0.00
6,500.00	5.67	351.68	6,481.69	370.53	-54.18	-369.67	0.00	0.00	0.00
6,600.00	5.67	351.68	6,581.20	380.30	-55.61	-379.42	0.00	0.00	0.00
6,700.00	5.67	351.68	6,680.72	390.08	-57.04	-389.17	0.00	0.00	0.00
6,800.00	5.67	351.68	6,780.23	399.85	-58.47	-398.92	0.00	0.00	0.00
6,900.00	5.67	351.68	6,879.74	409.62	-59.90	-408.67	0.00	0.00	0.00
7,000.00	5.67	351.68	6,979.25	419.40	-61.33	-418.42	0.00	0.00	0.00
7,100.00	5.67	351.68	7,078.76	429.17	-62.76	-428.17	0.00	0.00	0.00
7,108.28	5.67	351.68	7,087.00	429.98	-62.87	-428.97	0.00	0.00	0.00
1 BS Sand									
7,200.00	5.67	351.68	7,178.27	438.94	-64.18	-437.92	0.00	0.00	0.00
7,300.00	5.67	351.68	7,277.78	448.71	-65.61	-447.67	0.00	0.00	0.00
7,400.00	5.67	351.68	7,377.29	458.49	-67.04	-457.42	0.00	0.00	0.00
7,500.00	5.67	351.68	7,476.80	468.26	-68.47	-467.17	0.00	0.00	0.00
7,600.00	5.67	351.68	7,576.31	478.03	-69.90	-476.92	0.00	0.00	0.00
7,660.98	5.67	351.68	7,637.00	483.99	-70.77	-482.86	0.00	0.00	0.00
2 BS Sand									
7,700.00	5.67	351.68	7,675.83	487.81	-71.33	-486.67	0.00	0.00	0.00
7,800.00	5.67	351.68	7,775.34	497.58	-72.76	-496.42	0.00	0.00	0.00
7,900.00	5.67	351.68	7,874.85	507.35	-74.19	-506.17	0.00	0.00	0.00

M3P Directional Services

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Wellbore:	Lateral #1		
Design:	Design #1		

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)
8,000.00	5.67	351.68	7,974.36	517.12	-75.62	-515.92	0.00	0.00	0.00
8,100.00	5.67	351.68	8,073.87	526.90	-77.05	-525.67	0.00	0.00	0.00
8,200.00	5.67	351.68	8,173.38	536.67	-78.47	-535.42	0.00	0.00	0.00
8,300.00	5.67	351.68	8,272.89	546.44	-79.90	-545.17	0.00	0.00	0.00
8,400.00	5.67	351.68	8,372.40	556.22	-81.33	-554.92	0.00	0.00	0.00
8,500.00	5.67	351.68	8,471.91	565.99	-82.76	-564.67	0.00	0.00	0.00
8,536.34	5.67	351.68	8,508.08	569.54	-83.28	-568.21	0.00	0.00	0.00
KOP - B & T 10°/100'									
8,550.00	4.32	349.11	8,521.68	570.71	-83.48	-569.38	10.00	-9.86	-18.81
8,600.00	1.10	226.55	8,571.64	572.23	-84.18	-570.89	10.00	-6.44	-245.12
8,650.00	5.81	187.70	8,621.54	569.39	-84.87	-568.04	10.00	9.42	-77.70
8,700.00	10.78	184.01	8,671.00	562.21	-85.54	-560.85	10.00	9.95	-7.39
8,750.00	15.77	182.63	8,719.65	550.75	-86.17	-549.38	10.00	9.98	-2.75
8,800.00	20.77	181.91	8,767.11	535.09	-86.78	-533.71	10.00	9.99	-1.45
8,805.24	21.29	181.85	8,772.00	533.22	-86.84	-531.83	10.00	9.99	-1.09
3 BS Sand									
8,850.00	25.77	181.45	8,813.03	515.36	-87.35	-513.97	10.00	9.99	-0.89
8,900.00	30.76	181.14	8,857.06	491.69	-87.88	-490.30	10.00	10.00	-0.63
8,950.00	35.76	180.90	8,898.85	464.28	-88.37	-462.89	10.00	10.00	-0.47
9,000.00	40.76	180.72	8,938.10	433.33	-88.80	-431.93	10.00	10.00	-0.37
9,050.00	45.76	180.57	8,974.50	399.08	-89.19	-397.68	10.00	10.00	-0.30
9,100.00	50.76	180.45	9,007.78	361.78	-89.52	-360.38	10.00	10.00	-0.25
9,148.80	55.64	180.34	9,037.00	322.72	-89.78	-321.32	10.00	10.00	-0.22
Basal 3 BS									
9,150.00	55.76	180.34	9,037.68	321.73	-89.79	-320.33	10.00	10.00	-0.21
9,200.00	60.76	180.24	9,063.97	279.22	-90.00	-277.83	10.00	10.00	-0.19
9,250.00	65.76	180.15	9,086.47	234.59	-90.15	-233.19	10.00	10.00	-0.18
9,300.00	70.76	180.07	9,104.98	188.16	-90.24	-186.77	10.00	10.00	-0.16
9,350.00	75.76	179.99	9,119.38	140.29	-90.27	-138.91	10.00	10.00	-0.15
9,400.00	80.76	179.92	9,129.56	91.36	-90.23	-89.98	10.00	10.00	-0.15
9,450.00	85.75	179.85	9,135.43	41.72	-90.13	-40.34	10.00	10.00	-0.14
9,492.46	90.00	179.79	9,137.00	-0.70	-90.00	2.07	10.00	10.00	-0.14
EOC - Hold 90° - PP (CN20S2H)									
9,500.00	90.00	179.79	9,137.00	-8.24	-89.97	9.61	0.00	0.00	0.00
9,600.00	90.00	179.79	9,137.00	-108.24	-89.61	109.59	0.00	0.00	0.00
9,700.00	90.00	179.79	9,137.00	-208.24	-89.24	209.57	0.00	0.00	0.00
9,800.00	90.00	179.79	9,137.00	-308.24	-88.87	309.55	0.00	0.00	0.00
9,900.00	90.00	179.79	9,137.00	-408.24	-88.51	409.54	0.00	0.00	0.00
10,000.00	90.00	179.79	9,137.00	-508.24	-88.14	509.52	0.00	0.00	0.00
10,100.00	90.00	179.79	9,137.00	-608.24	-87.78	609.50	0.00	0.00	0.00
10,200.00	90.00	179.79	9,137.00	-708.24	-87.41	709.48	0.00	0.00	0.00
10,300.00	90.00	179.79	9,137.00	-808.24	-87.05	809.47	0.00	0.00	0.00
10,400.00	90.00	179.79	9,137.00	-908.24	-86.68	909.45	0.00	0.00	0.00
10,500.00	90.00	179.79	9,137.00	-1,008.24	-86.31	1,009.43	0.00	0.00	0.00
10,600.00	90.00	179.79	9,137.00	-1,108.24	-85.95	1,109.41	0.00	0.00	0.00
10,700.00	90.00	179.79	9,137.00	-1,208.23	-85.58	1,209.39	0.00	0.00	0.00
10,800.00	90.00	179.79	9,137.00	-1,308.23	-85.22	1,309.38	0.00	0.00	0.00
10,900.00	90.00	179.79	9,137.00	-1,408.23	-84.85	1,409.36	0.00	0.00	0.00
11,000.00	90.00	179.79	9,137.00	-1,508.23	-84.48	1,509.34	0.00	0.00	0.00
11,100.00	90.00	179.79	9,137.00	-1,608.23	-84.12	1,609.32	0.00	0.00	0.00
11,200.00	90.00	179.79	9,137.00	-1,708.23	-83.75	1,709.31	0.00	0.00	0.00
11,300.00	90.00	179.79	9,137.00	-1,808.23	-83.39	1,809.29	0.00	0.00	0.00
11,400.00	90.00	179.79	9,137.00	-1,908.23	-83.02	1,909.27	0.00	0.00	0.00

M3P Directional Services

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Cottonwood North 20 State 2H
Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3112.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83 NME) (10)	MD Reference:	WELL @ 3112.00usft (Original Well Elev)
Site:	Cottonwood North 20 State 2H	North Reference:	Grid
Well:	Cottonwood North 20 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

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)
11,500.00	90.00	179.79	9,137.00	-2,008.23	-82.65	2,009.25	0.00	0.00	0.00
11,600.00	90.00	179.79	9,137.00	-2,108.23	-82.29	2,109.24	0.00	0.00	0.00
11,700.00	90.00	179.79	9,137.00	-2,208.23	-81.92	2,209.22	0.00	0.00	0.00
11,800.00	90.00	179.79	9,137.00	-2,308.23	-81.56	2,309.20	0.00	0.00	0.00
11,900.00	90.00	179.79	9,137.00	-2,408.23	-81.19	2,409.18	0.00	0.00	0.00
12,000.00	90.00	179.79	9,137.00	-2,508.23	-80.82	2,509.16	0.00	0.00	0.00
12,100.00	90.00	179.79	9,137.00	-2,608.23	-80.46	2,609.15	0.00	0.00	0.00
12,200.00	90.00	179.79	9,137.00	-2,708.22	-80.09	2,709.13	0.00	0.00	0.00
12,300.00	90.00	179.79	9,137.00	-2,808.22	-79.73	2,809.11	0.00	0.00	0.00
12,400.00	90.00	179.79	9,137.00	-2,908.22	-79.36	2,909.09	0.00	0.00	0.00
12,500.00	90.00	179.79	9,137.00	-3,008.22	-79.00	3,009.08	0.00	0.00	0.00
12,600.00	90.00	179.79	9,137.00	-3,108.22	-78.63	3,109.06	0.00	0.00	0.00
12,700.00	90.00	179.79	9,137.00	-3,208.22	-78.26	3,209.04	0.00	0.00	0.00
12,800.00	90.00	179.79	9,137.00	-3,308.22	-77.90	3,309.02	0.00	0.00	0.00
12,900.00	90.00	179.79	9,137.00	-3,408.22	-77.53	3,409.00	0.00	0.00	0.00
13,000.00	90.00	179.79	9,137.00	-3,508.22	-77.17	3,508.99	0.00	0.00	0.00
13,100.00	90.00	179.79	9,137.00	-3,608.22	-76.80	3,608.97	0.00	0.00	0.00
13,200.00	90.00	179.79	9,137.00	-3,708.22	-76.43	3,708.95	0.00	0.00	0.00
13,300.00	90.00	179.79	9,137.00	-3,808.22	-76.07	3,808.93	0.00	0.00	0.00
13,400.00	90.00	179.79	9,137.00	-3,908.22	-75.70	3,908.92	0.00	0.00	0.00
13,500.00	90.00	179.79	9,137.00	-4,008.22	-75.34	4,008.90	0.00	0.00	0.00
13,600.00	90.00	179.79	9,137.00	-4,108.22	-74.97	4,108.88	0.00	0.00	0.00
13,700.00	90.00	179.79	9,137.00	-4,208.21	-74.60	4,208.86	0.00	0.00	0.00
13,800.00	90.00	179.79	9,137.00	-4,308.21	-74.24	4,308.84	0.00	0.00	0.00
13,900.00	90.00	179.79	9,137.00	-4,408.21	-73.87	4,408.83	0.00	0.00	0.00
14,000.00	90.00	179.79	9,137.00	-4,508.21	-73.51	4,508.81	0.00	0.00	0.00
14,100.00	90.00	179.79	9,137.00	-4,608.21	-73.14	4,608.79	0.00	0.00	0.00
14,200.00	90.00	179.79	9,137.00	-4,708.21	-72.77	4,708.77	0.00	0.00	0.00
14,247.69	90.00	179.79	9,137.00	-4,755.90	-72.60	4,756.45	0.00	0.00	0.00
PBHL - TD (CN20S2H)									

Design Targets

Target Name	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL - TD (CN20S2H)	0.00	0.00	9,137.00	-4,755.90	-72.60	371,708.20	610,027.00	32° 1' 18.164 N	104° 6' 42.098 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									
PP (CN20S2H)	0.00	0.00	9,137.00	-0.70	-90.00	376,463.40	610,009.60	32° 2' 5.223 N	104° 6' 42.186 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,467.00	2,467.00	9 5/8" Casing	9-5/8	12-1/4
14,247.69	9,137.00	5 1/2" Casing	5-1/2	8-3/4

M3P Directional Services

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Cottonwood North 20 State 2H
Company:	Nearburg Producing Co.	TVD Reference:	WELL @ 3112.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD83-NME) (10)	MD Reference:	WELL @ 3112.00usft (Original Well Elev)
Site:	Cottonwood North 20 State 2H	North Reference:	Grid
Well:	Cottonwood North 20 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral #1		
Design:	Design #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
442.00	442.00	Rustler		0.00	
587.00	587.00	Top of Salt		0.00	
2,267.00	2,267.00	Base of Salt		0.00	
2,447.00	2,447.00	Lamar		0.00	
2,487.00	2,487.00	Bell Canyon		0.00	
3,349.90	3,347.00	Cherry Canyon		0.00	
4,656.29	4,647.00	Brushy Canyon		0.00	
6,264.15	6,247.00	Bone Spring Lime		0.00	
7,108.28	7,087.00	1 BS Sand		0.00	
7,660.98	7,637.00	2 BS Sand		0.00	
8,805.24	8,772.00	3 BS Sand		0.00	
9,148.80	9,037.00	Basal 3 BS		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,567.00	2,567.00	0.00	0.00	KOP - Build 2°/100'
2,850.41	2,849.95	13.86	-2.03	EOC - Hold 5.65°
8,536.34	8,508.08	569.54	-83.28	KOP - B & T 10°/100'
9,492.46	9,137.00	-0.70	-90.00	EOC - Hold 90°