



CONCHO

NORTHERN DELAWARE BASIN

LEA COUNTY, NM

BULLDOG

FASCINATOR FED COM #704H

OWB

Design: ACTUAL WELLPATH

Standard Survey Report

12 March, 2019



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FASCINATOR FED COM #704H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

Project	LEA COUNTY, NM		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	BULLDOG				
Site Position:		Northing:	398,637.10 usft	Latitude:	32° 5' 36.820 N
From:	Map	Easting:	741,887.40 usft	Longitude:	103° 33' 8.116 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.42 °

Well	FASCINATOR FED COM #704H				
Well Position	+N/-S	0.0 usft	Northing:	435,899.90 usft	Latitude: 32° 11' 42.165 N
	+E/-W	0.0 usft	Easting:	785,155.40 usft	Longitude: 103° 24' 41.479 W
Position Uncertainty	3.0 usft	Wellhead Elevation:	usft	Ground Level:	3,370.0 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM2015	6/25/2018	6.79	60.03	47,818.65313916

Design	ACTUAL WELLPATH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	178.55	

Survey Program	Date 2/28/2019				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	11,922.0	GYRO (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
11,922.0	22,679.0	MWD-CURVE/LATERAL (OWB)	MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-Station Correction	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.16	251.52	100.0	0.0	-0.1	0.0	0.16	0.16	0.00	
125.0	0.39	213.75	125.0	-0.1	-0.2	0.1	1.12	0.92	-151.08	
150.0	0.56	206.31	150.0	-0.3	-0.3	0.3	0.72	0.68	-29.76	
175.0	0.59	210.77	175.0	-0.5	-0.4	0.5	0.22	0.12	17.84	
200.0	0.57	215.37	200.0	-0.7	-0.6	0.7	0.20	-0.08	18.40	
225.0	0.56	213.14	225.0	-0.9	-0.7	0.9	0.10	-0.04	-8.92	
250.0	0.50	205.80	250.0	-1.1	-0.8	1.1	0.36	-0.24	-29.36	
275.0	0.70	208.70	275.0	-1.4	-0.9	1.4	0.81	0.80	11.60	
300.0	0.75	211.88	300.0	-1.6	-1.1	1.6	0.26	0.20	12.72	



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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)
325.0	0.66	211.19	325.0	-1.9	-1.3	1.9	0.36	-0.36	-2.76
350.0	0.61	213.38	350.0	-2.1	-1.4	2.1	0.22	-0.20	8.76
375.0	0.48	215.79	375.0	-2.3	-1.5	2.3	0.53	-0.52	9.64
400.0	0.48	209.58	400.0	-2.5	-1.7	2.5	0.21	0.00	-24.84
425.0	0.44	214.01	425.0	-2.7	-1.8	2.6	0.21	-0.16	17.72
450.0	0.55	203.89	450.0	-2.9	-1.9	2.8	0.56	0.44	-40.48
475.0	0.34	200.45	475.0	-3.1	-1.9	3.0	0.85	-0.84	-13.76
500.0	0.32	195.61	500.0	-3.2	-2.0	3.1	0.14	-0.08	-19.36
525.0	0.40	193.35	525.0	-3.3	-2.0	3.3	0.32	0.32	-9.04
550.0	0.28	186.55	550.0	-3.5	-2.1	3.4	0.51	-0.48	-27.20
575.0	0.23	200.96	575.0	-3.6	-2.1	3.5	0.32	-0.20	57.64
600.0	0.22	188.21	600.0	-3.7	-2.1	3.6	0.20	-0.04	-51.00
625.0	0.10	185.91	625.0	-3.8	-2.1	3.7	0.48	-0.48	-9.20
650.0	0.11	207.78	650.0	-3.8	-2.1	3.7	0.16	0.04	87.48
675.0	0.09	256.44	675.0	-3.8	-2.2	3.8	0.34	-0.08	194.64
700.0	0.07	142.55	700.0	-3.8	-2.2	3.8	0.54	-0.08	-455.56
725.0	0.10	60.74	725.0	-3.8	-2.1	3.8	0.45	0.12	-327.24
750.0	0.04	283.40	750.0	-3.8	-2.1	3.8	0.53	-0.24	-549.36
775.0	0.08	57.32	775.0	-3.8	-2.1	3.8	0.45	0.16	535.68
800.0	0.12	11.88	800.0	-3.8	-2.1	3.7	0.34	0.16	-181.76
825.0	0.15	9.21	825.0	-3.7	-2.1	3.7	0.12	0.12	-10.68
850.0	0.14	8.22	850.0	-3.7	-2.1	3.6	0.04	-0.04	-3.96
875.0	0.18	350.30	875.0	-3.6	-2.1	3.5	0.25	0.16	-71.68
900.0	0.19	347.79	900.0	-3.5	-2.1	3.5	0.05	0.04	-10.04
925.0	0.26	5.35	925.0	-3.4	-2.1	3.4	0.39	0.28	70.24
950.0	0.20	1.81	950.0	-3.3	-2.1	3.3	0.25	-0.24	-14.16
975.0	0.20	12.90	975.0	-3.2	-2.1	3.2	0.15	0.00	44.36
1,000.0	0.18	3.94	1,000.0	-3.2	-2.1	3.1	0.14	-0.08	-35.84
1,025.0	0.16	9.86	1,025.0	-3.1	-2.1	3.0	0.11	-0.08	23.68
1,050.0	0.12	38.26	1,050.0	-3.0	-2.0	3.0	0.32	-0.16	113.60
1,075.0	0.15	27.15	1,075.0	-3.0	-2.0	2.9	0.16	0.12	-44.44
1,100.0	0.05	46.87	1,100.0	-2.9	-2.0	2.9	0.42	-0.40	78.88
1,125.0	0.17	51.93	1,125.0	-2.9	-2.0	2.9	0.48	0.48	20.24
1,150.0	0.13	69.63	1,150.0	-2.9	-1.9	2.8	0.24	-0.16	70.80
1,175.0	0.24	88.72	1,175.0	-2.9	-1.8	2.8	0.50	0.44	76.36
1,200.0	0.20	101.21	1,200.0	-2.9	-1.7	2.8	0.25	-0.16	49.96
1,225.0	0.27	91.31	1,225.0	-2.9	-1.6	2.8	0.32	0.28	-39.60
1,250.0	0.33	90.88	1,250.0	-2.9	-1.5	2.8	0.24	0.24	-1.72
1,275.0	0.29	90.70	1,275.0	-2.9	-1.4	2.9	0.16	-0.16	-0.72
1,300.0	0.31	99.93	1,300.0	-2.9	-1.2	2.9	0.21	0.08	36.92
1,325.0	0.31	97.66	1,325.0	-2.9	-1.1	2.9	0.05	0.00	-9.08
1,350.0	0.40	102.52	1,350.0	-2.9	-0.9	2.9	0.38	0.36	19.44
1,375.0	0.30	85.72	1,375.0	-3.0	-0.8	2.9	0.57	-0.40	-67.20



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1,400.0	0.34	91.81	1,400.0	-3.0	-0.6	2.9	0.21	0.16	24.36
1,425.0	0.42	100.77	1,425.0	-3.0	-0.5	3.0	0.40	0.32	35.84
1,450.0	0.44	93.63	1,450.0	-3.0	-0.3	3.0	0.23	0.08	-28.56
1,475.0	0.49	94.87	1,475.0	-3.0	-0.1	3.0	0.20	0.20	4.96
1,500.0	0.52	88.17	1,500.0	-3.0	0.1	3.0	0.26	0.12	-26.80
1,525.0	0.51	97.54	1,525.0	-3.0	0.3	3.0	0.34	-0.04	37.48
1,550.0	0.57	106.94	1,550.0	-3.1	0.6	3.1	0.43	0.24	37.60
1,575.0	0.62	103.63	1,575.0	-3.2	0.8	3.2	0.24	0.20	-13.24
1,600.0	0.67	104.72	1,600.0	-3.2	1.1	3.2	0.21	0.20	4.36
1,625.0	0.71	98.97	1,625.0	-3.3	1.4	3.3	0.32	0.16	-23.00
1,650.0	0.70	101.89	1,650.0	-3.3	1.7	3.4	0.15	-0.04	11.68
1,675.0	0.71	104.47	1,675.0	-3.4	2.0	3.5	0.13	0.04	10.32
1,700.0	0.72	99.17	1,700.0	-3.5	2.3	3.5	0.27	0.04	-21.20
1,725.0	0.74	96.43	1,725.0	-3.5	2.6	3.6	0.16	0.08	-10.96
1,750.0	0.78	99.61	1,750.0	-3.6	2.9	3.6	0.23	0.16	12.72
1,775.0	0.80	100.18	1,775.0	-3.6	3.3	3.7	0.09	0.08	2.28
1,800.0	0.81	99.56	1,800.0	-3.7	3.6	3.8	0.05	0.04	-2.48
1,825.0	0.89	101.46	1,824.9	-3.8	4.0	3.9	0.34	0.32	7.60
1,850.0	0.76	102.03	1,849.9	-3.8	4.3	3.9	0.52	-0.52	2.28
1,875.0	0.86	99.90	1,874.9	-3.9	4.7	4.0	0.42	0.40	-8.52
1,900.0	0.89	104.25	1,899.9	-4.0	5.1	4.1	0.29	0.12	17.40
1,925.0	0.83	106.25	1,924.9	-4.1	5.4	4.2	0.27	-0.24	8.00
1,950.0	0.89	103.18	1,949.9	-4.2	5.8	4.3	0.30	0.24	-12.28
1,975.0	1.01	101.59	1,974.9	-4.3	6.2	4.4	0.49	0.48	-6.36
2,000.0	1.08	100.68	1,999.9	-4.3	6.6	4.5	0.29	0.28	-3.64
2,025.0	1.09	100.88	2,024.9	-4.4	7.1	4.6	0.04	0.04	0.80
2,050.0	1.13	102.59	2,049.9	-4.5	7.6	4.7	0.21	0.16	6.84
2,075.0	1.21	103.05	2,074.9	-4.6	8.1	4.8	0.32	0.32	1.84
2,100.0	1.19	99.49	2,099.9	-4.7	8.6	5.0	0.31	-0.08	-14.24
2,125.0	1.25	100.20	2,124.9	-4.8	9.1	5.1	0.25	0.24	2.84
2,150.0	1.21	100.73	2,149.9	-4.9	9.6	5.2	0.17	-0.16	2.12
2,175.0	1.30	102.10	2,174.9	-5.0	10.2	5.3	0.38	0.36	5.48
2,200.0	1.36	99.68	2,199.9	-5.1	10.8	5.4	0.33	0.24	-9.68
2,225.0	1.38	99.00	2,224.9	-5.2	11.3	5.5	0.10	0.08	-2.72
2,250.0	1.45	100.94	2,249.9	-5.4	12.0	5.7	0.34	0.28	7.76
2,275.0	1.40	98.90	2,274.9	-5.5	12.6	5.8	0.28	-0.20	-8.16
2,300.0	1.51	102.30	2,299.9	-5.6	13.2	5.9	0.56	0.44	13.60
2,325.0	1.50	103.08	2,324.8	-5.7	13.8	6.1	0.09	-0.04	3.12
2,350.0	1.50	100.45	2,349.8	-5.9	14.5	6.2	0.28	0.00	-10.52
2,375.0	1.60	99.84	2,374.8	-6.0	15.1	6.4	0.41	0.40	-2.44
2,400.0	1.52	99.68	2,399.8	-6.1	15.8	6.5	0.32	-0.32	-0.64
2,425.0	1.52	100.85	2,424.8	-6.2	16.5	6.6	0.12	0.00	4.68
2,450.0	1.59	106.50	2,449.8	-6.4	17.1	6.8	0.67	0.28	22.60



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2,475.0	1.63	104.06	2,474.8	-6.6	17.8	7.0	0.32	0.16	-9.76
2,500.0	1.60	106.11	2,499.8	-6.7	18.5	7.2	0.26	-0.12	8.20
2,525.0	1.58	105.52	2,524.8	-6.9	19.1	7.4	0.10	-0.08	-2.36
2,550.0	1.61	106.43	2,549.8	-7.1	19.8	7.6	0.16	0.12	3.64
2,575.0	1.53	106.52	2,574.8	-7.3	20.5	7.8	0.32	-0.32	0.36
2,600.0	1.47	105.52	2,599.7	-7.5	21.1	8.0	0.26	-0.24	-4.00
2,625.0	1.28	112.49	2,624.7	-7.7	21.7	8.2	1.01	-0.76	27.88
2,650.0	1.01	105.04	2,649.7	-7.8	22.1	8.4	1.23	-1.08	-29.80
2,675.0	0.93	107.22	2,674.7	-8.0	22.5	8.5	0.35	-0.32	8.72
2,700.0	1.05	107.86	2,699.7	-8.1	23.0	8.7	0.48	0.48	2.56
2,725.0	0.94	105.11	2,724.7	-8.2	23.4	8.8	0.48	-0.44	-11.00
2,750.0	0.93	106.09	2,749.7	-8.3	23.8	8.9	0.08	-0.04	3.92
2,775.0	0.92	111.95	2,774.7	-8.5	24.1	9.1	0.38	-0.04	23.44
2,800.0	0.94	108.86	2,799.7	-8.6	24.5	9.2	0.22	0.08	-12.36
2,825.0	0.96	108.48	2,824.7	-8.7	24.9	9.4	0.08	0.08	-1.52
2,850.0	0.92	110.65	2,849.7	-8.9	25.3	9.5	0.21	-0.16	8.68
2,875.0	0.88	107.86	2,874.7	-9.0	25.7	9.6	0.24	-0.16	-11.16
2,900.0	0.84	109.90	2,899.7	-9.1	26.0	9.8	0.20	-0.16	8.16
2,925.0	0.91	110.89	2,924.7	-9.3	26.4	9.9	0.29	0.28	3.96
2,950.0	0.87	107.94	2,949.7	-9.4	26.8	10.1	0.24	-0.16	-11.80
2,975.0	0.89	112.95	2,974.7	-9.5	27.1	10.2	0.32	0.08	20.04
3,000.0	0.91	113.48	2,999.7	-9.7	27.5	10.4	0.09	0.08	2.12
3,025.0	0.92	110.84	3,024.7	-9.8	27.8	10.5	0.17	0.04	-10.56
3,050.0	0.92	109.07	3,049.7	-10.0	28.2	10.7	0.11	0.00	-7.08
3,075.0	1.01	110.70	3,074.7	-10.1	28.6	10.8	0.38	0.36	6.52
3,100.0	0.97	113.68	3,099.7	-10.3	29.0	11.0	0.26	-0.16	11.92
3,125.0	0.98	114.77	3,124.7	-10.4	29.4	11.2	0.08	0.04	4.36
3,150.0	0.88	108.95	3,149.7	-10.6	29.8	11.3	0.55	-0.40	-23.28
3,175.0	0.82	109.39	3,174.7	-10.7	30.1	11.5	0.24	-0.24	1.76
3,200.0	0.39	95.94	3,199.7	-10.8	30.4	11.6	1.80	-1.72	-53.80
3,225.0	0.28	102.43	3,224.7	-10.8	30.5	11.6	0.46	-0.44	25.96
3,250.0	0.16	103.99	3,249.7	-10.8	30.6	11.6	0.48	-0.48	6.24
3,275.0	0.19	82.38	3,274.7	-10.8	30.7	11.6	0.29	0.12	-86.44
3,300.0	0.23	83.85	3,299.7	-10.8	30.8	11.6	0.16	0.16	5.88
3,325.0	0.21	91.21	3,324.7	-10.8	30.9	11.6	0.14	-0.08	29.44
3,350.0	0.17	73.86	3,349.7	-10.8	31.0	11.6	0.28	-0.16	-69.40
3,375.0	0.18	65.41	3,374.7	-10.8	31.0	11.6	0.11	0.04	-33.80
3,400.0	0.20	75.76	3,399.7	-10.8	31.1	11.5	0.16	0.08	41.40
3,425.0	0.38	69.44	3,424.7	-10.7	31.2	11.5	0.73	0.72	-25.28
3,450.0	0.45	83.39	3,449.7	-10.7	31.4	11.5	0.49	0.28	55.80
3,475.0	0.31	78.48	3,474.7	-10.6	31.6	11.4	0.57	-0.56	-19.64
3,500.0	0.37	82.30	3,499.7	-10.6	31.7	11.4	0.26	0.24	15.28
3,525.0	0.53	84.08	3,524.7	-10.6	31.9	11.4	0.64	0.64	7.12
3,550.0	0.66	84.02	3,549.7	-10.6	32.2	11.4	0.52	0.52	-0.24



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 Project: LEA COUNTY, NM
 Site: BULLDOG
 Well: FASCINATOR FED COM #704H
 Wellbore: OWB
 Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
 TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
 MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM_Users

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)
3,575.0	0.69	86.14	3,574.7	-10.5	32.5	11.4	0.16	0.12	8.48
3,600.0	0.71	85.23	3,599.6	-10.5	32.8	11.4	0.09	0.08	-3.64
3,625.0	0.81	83.00	3,624.6	-10.5	33.1	11.3	0.42	0.40	-8.92
3,650.0	0.90	86.53	3,649.6	-10.5	33.5	11.3	0.42	0.36	14.12
3,675.0	1.01	83.56	3,674.6	-10.4	33.9	11.3	0.48	0.44	-11.88
3,700.0	1.14	86.95	3,699.6	-10.4	34.4	11.2	0.58	0.52	13.56
3,725.0	1.16	85.70	3,724.6	-10.4	34.9	11.2	0.13	0.08	-5.00
3,750.0	1.23	90.29	3,749.6	-10.3	35.4	11.2	0.47	0.28	18.36
3,775.0	1.42	92.10	3,774.6	-10.3	36.0	11.3	0.78	0.76	7.24
3,800.0	1.57	93.37	3,799.6	-10.4	36.6	11.3	0.61	0.60	5.08
3,825.0	1.60	94.52	3,824.6	-10.4	37.3	11.4	0.17	0.12	4.60
3,850.0	1.57	92.81	3,849.6	-10.5	38.0	11.4	0.22	-0.12	-6.84
3,875.0	1.62	94.67	3,874.6	-10.5	38.7	11.5	0.29	0.20	7.44
3,900.0	1.80	93.19	3,899.6	-10.6	39.4	11.6	0.74	0.72	-5.92
3,925.0	1.58	95.24	3,924.6	-10.6	40.2	11.6	0.91	-0.88	8.20
3,950.0	1.17	78.33	3,949.6	-10.6	40.7	11.6	2.29	-1.64	-67.64
3,975.0	0.86	57.36	3,974.5	-10.4	41.2	11.5	1.92	-1.24	-83.88
4,000.0	0.88	57.37	3,999.5	-10.2	41.5	11.3	0.08	0.08	0.04
4,025.0	0.84	49.14	4,024.5	-10.0	41.8	11.1	0.52	-0.16	-32.92
4,050.0	0.79	52.12	4,049.5	-9.8	42.1	10.9	0.26	-0.20	11.92
4,075.0	0.86	45.94	4,074.5	-9.6	42.3	10.6	0.45	0.28	-24.72
4,100.0	0.83	46.09	4,099.5	-9.3	42.6	10.4	0.12	-0.12	0.60
4,125.0	0.91	47.01	4,124.5	-9.0	42.9	10.1	0.32	0.32	3.68
4,150.0	0.89	47.29	4,149.5	-8.8	43.2	9.9	0.08	-0.08	1.12
4,175.0	0.76	47.16	4,174.5	-8.5	43.4	9.6	0.52	-0.52	-0.52
4,200.0	0.81	46.36	4,199.5	-8.3	43.7	9.4	0.20	0.20	-3.20
4,225.0	0.92	46.41	4,224.5	-8.0	43.9	9.1	0.44	0.44	0.20
4,250.0	0.78	45.34	4,249.5	-7.8	44.2	8.9	0.56	-0.56	-4.28
4,275.0	1.05	54.70	4,274.5	-7.5	44.5	8.6	1.23	1.08	37.44
4,300.0	1.08	58.50	4,299.5	-7.3	44.9	8.4	0.31	0.12	15.20
4,325.0	0.96	58.78	4,324.5	-7.0	45.3	8.2	0.48	-0.48	1.12
4,350.0	0.99	60.21	4,349.5	-6.8	45.6	8.0	0.15	0.12	5.72
4,375.0	1.07	61.78	4,374.5	-6.6	46.0	7.8	0.34	0.32	6.28
4,400.0	1.11	64.21	4,399.5	-6.4	46.5	7.6	0.24	0.16	9.72
4,425.0	1.14	70.09	4,424.5	-6.2	46.9	7.4	0.48	0.12	23.52
4,450.0	1.30	78.13	4,449.5	-6.1	47.4	7.3	0.94	0.64	32.16
4,475.0	1.44	76.50	4,474.5	-5.9	48.0	7.1	0.58	0.56	-6.52
4,500.0	1.52	77.84	4,499.5	-5.8	48.6	7.0	0.35	0.32	5.36
4,525.0	1.56	78.40	4,524.5	-5.6	49.3	6.9	0.17	0.16	2.24
4,550.0	1.53	79.18	4,549.5	-5.5	50.0	6.8	0.15	-0.12	3.12
4,575.0	1.47	79.64	4,574.4	-5.4	50.6	6.7	0.24	-0.24	1.84
4,600.0	1.61	81.29	4,599.4	-5.3	51.3	6.6	0.59	0.56	6.60
4,625.0	1.70	84.80	4,624.4	-5.2	52.0	6.5	0.54	0.36	14.04



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FASCINATOR FED COM #704H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
4,650.0	1.75	85.17	4,649.4	-5.1	52.7	6.5	0.20	0.20	1.48
4,675.0	1.69	85.14	4,674.4	-5.1	53.5	6.4	0.24	-0.24	-0.12
4,700.0	1.48	83.98	4,699.4	-5.0	54.2	6.4	0.85	-0.84	-4.64
4,725.0	1.25	79.05	4,724.4	-4.9	54.8	6.3	1.03	-0.92	-19.72
4,750.0	1.05	78.27	4,749.4	-4.8	55.2	6.2	0.80	-0.80	-3.12
4,775.0	0.79	79.54	4,774.4	-4.7	55.6	6.1	1.04	-1.04	5.08
4,800.0	0.44	42.80	4,799.4	-4.6	55.9	6.0	2.04	-1.40	-146.96
4,825.0	0.37	31.92	4,824.4	-4.5	56.0	5.9	0.41	-0.28	-43.52
4,850.0	0.39	33.80	4,849.4	-4.4	56.1	5.8	0.09	0.08	7.52
4,875.0	0.41	31.89	4,874.4	-4.2	56.2	5.6	0.10	0.08	-7.64
4,900.0	0.46	31.54	4,899.4	-4.0	56.3	5.5	0.20	0.20	-1.40
4,925.0	0.64	51.33	4,924.4	-3.9	56.4	5.3	1.04	0.72	79.16
4,950.0	0.73	66.05	4,949.4	-3.7	56.7	5.2	0.79	0.36	58.88
4,975.0	0.94	65.90	4,974.4	-3.6	57.0	5.0	0.84	0.84	-0.60
5,000.0	0.92	66.76	4,999.4	-3.4	57.4	4.9	0.10	-0.08	3.44
5,025.0	0.88	68.00	5,024.4	-3.3	57.7	4.7	0.18	-0.16	4.96
5,050.0	0.89	65.90	5,049.4	-3.1	58.1	4.6	0.14	0.04	-8.40
5,075.0	0.89	62.53	5,074.4	-2.9	58.5	4.4	0.21	0.00	-13.48
5,100.0	0.93	55.64	5,099.4	-2.7	58.8	4.2	0.47	0.16	-27.56
5,125.0	0.83	53.38	5,124.3	-2.5	59.1	4.0	0.42	-0.40	-9.04
5,150.0	0.88	54.13	5,149.3	-2.3	59.4	3.8	0.20	0.20	3.00
5,175.0	0.96	53.65	5,174.3	-2.1	59.7	3.6	0.32	0.32	-1.92
5,200.0	1.04	57.01	5,199.3	-1.8	60.1	3.3	0.40	0.32	13.44
5,225.0	0.84	52.79	5,224.3	-1.6	60.4	3.1	0.85	-0.80	-16.88
5,250.0	1.00	54.06	5,249.3	-1.3	60.8	2.9	0.65	0.64	5.08
5,275.0	0.98	50.72	5,274.3	-1.1	61.1	2.6	0.24	-0.08	-13.36
5,300.0	0.91	49.80	5,299.3	-0.8	61.4	2.4	0.29	-0.28	-3.68
5,325.0	0.93	48.51	5,324.3	-0.5	61.7	2.1	0.12	0.08	-5.16
5,350.0	1.01	50.74	5,349.3	-0.3	62.0	1.8	0.35	0.32	8.92
5,375.0	1.03	50.15	5,374.3	0.0	62.4	1.6	0.09	0.08	-2.36
5,400.0	0.99	47.72	5,399.3	0.3	62.7	1.3	0.23	-0.16	-9.72
5,425.0	0.90	48.31	5,424.3	0.6	63.0	1.0	0.36	-0.36	2.36
5,450.0	1.09	46.29	5,449.3	0.9	63.3	0.7	0.77	0.76	-8.08
5,475.0	1.11	46.38	5,474.3	1.2	63.7	0.4	0.08	0.08	0.36
5,500.0	1.10	43.92	5,499.3	1.5	64.0	0.1	0.19	-0.04	-9.84
5,525.0	1.12	45.59	5,524.3	1.9	64.4	-0.3	0.15	0.08	6.68
5,550.0	1.11	45.07	5,549.3	2.2	64.7	-0.6	0.06	-0.04	-2.08
5,575.0	1.14	47.85	5,574.3	2.6	65.1	-0.9	0.25	0.12	11.12
5,600.0	1.12	46.77	5,599.3	2.9	65.4	-1.2	0.12	-0.08	-4.32
5,625.0	1.17	46.27	5,624.3	3.2	65.8	-1.6	0.20	0.20	-2.00
5,650.0	1.20	45.28	5,649.3	3.6	66.2	-1.9	0.15	0.12	-3.96
5,675.0	1.28	43.57	5,674.3	4.0	66.5	-2.3	0.35	0.32	-6.84
5,700.0	1.15	43.67	5,699.3	4.4	66.9	-2.7	0.52	-0.52	0.40



Survey Report

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 Site: BULLDOG
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 Wellbore: OWB
 Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
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 MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
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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)
5,725.0	1.13	42.02	5,724.2	4.7	67.2	-3.0	0.15	-0.08	-6.60
5,750.0	0.84	28.63	5,749.2	5.1	67.5	-3.4	1.47	-1.16	-53.56
5,775.0	0.68	5.08	5,774.2	5.4	67.6	-3.7	1.39	-0.64	-94.20
5,800.0	0.67	348.65	5,799.2	5.7	67.6	-4.0	0.77	-0.04	-65.72
5,825.0	0.75	343.39	5,824.2	6.0	67.5	-4.3	0.41	0.32	-21.04
5,850.0	0.70	341.36	5,849.2	6.3	67.4	-4.6	0.22	-0.20	-8.12
5,875.0	0.70	335.09	5,874.2	6.6	67.3	-4.9	0.31	0.00	-25.08
5,900.0	0.75	335.03	5,899.2	6.9	67.2	-5.2	0.20	0.20	-0.24
5,925.0	0.76	338.26	5,924.2	7.2	67.0	-5.5	0.17	0.04	12.92
5,950.0	0.75	335.86	5,949.2	7.5	66.9	-5.8	0.13	-0.04	-9.60
5,975.0	0.76	331.74	5,974.2	7.8	66.8	-6.1	0.22	0.04	-16.48
6,000.0	0.77	333.24	5,999.2	8.1	66.6	-6.4	0.09	0.04	6.00
6,025.0	0.73	332.72	6,024.2	8.3	66.5	-6.7	0.16	-0.16	-2.08
6,050.0	0.73	334.42	6,049.2	8.6	66.3	-6.9	0.09	0.00	6.80
6,075.0	0.79	331.59	6,074.2	8.9	66.2	-7.2	0.28	0.24	-11.32
6,100.0	0.75	335.60	6,099.2	9.2	66.0	-7.6	0.27	-0.16	16.04
6,125.0	0.73	335.89	6,124.2	9.5	65.9	-7.8	0.08	-0.08	1.16
6,150.0	0.74	336.33	6,149.2	9.8	65.8	-8.1	0.05	0.04	1.76
6,175.0	0.71	329.93	6,174.2	10.1	65.6	-8.4	0.35	-0.12	-25.60
6,200.0	0.78	335.92	6,199.2	10.4	65.5	-8.7	0.42	0.28	23.96
6,225.0	0.75	334.39	6,224.2	10.7	65.3	-9.0	0.15	-0.12	-6.12
6,250.0	0.68	333.25	6,249.2	11.0	65.2	-9.3	0.29	-0.28	-4.56
6,275.0	0.75	334.16	6,274.2	11.2	65.0	-9.6	0.28	0.28	3.64
6,300.0	0.77	345.63	6,299.2	11.6	64.9	-9.9	0.61	0.08	45.88
6,325.0	0.63	16.91	6,324.2	11.9	64.9	-10.2	1.60	-0.56	125.12
6,350.0	0.77	47.30	6,349.2	12.1	65.1	-10.4	1.56	0.56	121.56
6,375.0	0.68	57.86	6,374.2	12.3	65.3	-10.6	0.64	-0.36	42.24
6,400.0	0.71	58.28	6,399.2	12.4	65.6	-10.8	0.12	0.12	1.68
6,425.0	0.78	63.68	6,424.2	12.6	65.9	-10.9	0.40	0.28	21.60
6,450.0	0.82	61.84	6,449.2	12.8	66.2	-11.1	0.19	0.16	-7.36
6,475.0	0.73	60.91	6,474.2	12.9	66.5	-11.2	0.36	-0.36	-3.72
6,500.0	0.75	56.68	6,499.2	13.1	66.8	-11.4	0.23	0.08	-16.92
6,525.0	0.66	58.11	6,524.2	13.3	67.0	-11.6	0.37	-0.36	5.72
6,550.0	0.85	58.68	6,549.2	13.4	67.3	-11.7	0.76	0.76	2.28
6,575.0	0.88	62.40	6,574.2	13.6	67.6	-11.9	0.25	0.12	14.88
6,600.0	0.90	59.85	6,599.2	13.8	68.0	-12.1	0.18	0.08	-10.20
6,625.0	0.81	56.76	6,624.2	14.0	68.3	-12.3	0.40	-0.36	-12.36
6,650.0	0.90	58.52	6,649.2	14.2	68.6	-12.5	0.37	0.36	7.04
6,675.0	0.92	58.52	6,674.2	14.4	69.0	-12.7	0.08	0.08	0.00
6,700.0	0.88	61.41	6,699.2	14.6	69.3	-12.8	0.24	-0.16	11.56
6,725.0	0.95	59.97	6,724.2	14.8	69.6	-13.0	0.29	0.28	-5.76
6,750.0	1.04	63.93	6,749.2	15.0	70.0	-13.2	0.45	0.36	15.84
6,775.0	1.07	64.13	6,774.1	15.2	70.4	-13.4	0.12	0.12	0.80
6,800.0	1.12	64.40	6,799.1	15.4	70.9	-13.6	0.20	0.20	1.08



Survey Report

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Project: LEA COUNTY, NM
Site: BULLDOG
Well: FASCINATOR FED COM #704H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
6,825.0	1.13	62.27	6,824.1	15.6	71.3	-13.8	0.17	0.04	-8.52
6,850.0	1.17	63.48	6,849.1	15.9	71.8	-14.0	0.19	0.16	4.84
6,875.0	1.13	63.12	6,874.1	16.1	72.2	-14.3	0.16	-0.16	-1.44
6,900.0	1.18	62.21	6,899.1	16.3	72.6	-14.5	0.21	0.20	-3.64
6,925.0	1.24	63.63	6,924.1	16.6	73.1	-14.7	0.27	0.24	5.68
6,950.0	1.16	65.27	6,949.1	16.8	73.6	-14.9	0.35	-0.32	6.56
6,975.0	1.22	64.14	6,974.1	17.0	74.1	-15.1	0.26	0.24	-4.52
7,000.0	1.26	62.81	6,999.1	17.2	74.5	-15.4	0.20	0.16	-5.32
7,025.0	1.21	62.80	7,024.1	17.5	75.0	-15.6	0.20	-0.20	-0.04
7,050.0	1.26	64.97	7,049.1	17.7	75.5	-15.8	0.27	0.20	8.68
7,075.0	1.19	63.51	7,074.1	18.0	76.0	-16.0	0.31	-0.28	-5.84
7,100.0	1.21	65.81	7,099.1	18.2	76.5	-16.2	0.21	0.08	9.20
7,125.0	1.28	63.83	7,124.1	18.4	77.0	-16.5	0.33	0.28	-7.92
7,150.0	1.36	64.48	7,149.1	18.7	77.5	-16.7	0.33	0.32	2.60
7,175.0	1.36	62.96	7,174.1	18.9	78.0	-17.0	0.14	0.00	-6.08
7,200.0	1.36	66.21	7,199.1	19.2	78.5	-17.2	0.31	0.00	13.00
7,225.0	1.35	65.48	7,224.0	19.4	79.1	-17.4	0.08	-0.04	-2.92
7,250.0	1.45	63.90	7,249.0	19.7	79.6	-17.7	0.43	0.40	-6.32
7,275.0	1.42	63.87	7,274.0	20.0	80.2	-17.9	0.12	-0.12	-0.12
7,300.0	1.45	64.75	7,299.0	20.2	80.8	-18.2	0.15	0.12	3.52
7,325.0	1.51	64.43	7,324.0	20.5	81.3	-18.5	0.24	0.24	-1.28
7,350.0	1.58	64.41	7,349.0	20.8	81.9	-18.7	0.28	0.28	-0.08
7,375.0	1.68	65.96	7,374.0	21.1	82.6	-19.0	0.44	0.40	6.20
7,400.0	1.46	62.94	7,399.0	21.4	83.2	-19.3	0.94	-0.88	-12.08
7,425.0	1.54	65.93	7,424.0	21.7	83.8	-19.6	0.45	0.32	11.96
7,450.0	1.54	64.69	7,449.0	22.0	84.4	-19.8	0.13	0.00	-4.96
7,475.0	1.65	66.66	7,474.0	22.2	85.0	-20.1	0.49	0.44	7.88
7,500.0	1.69	66.84	7,498.9	22.5	85.7	-20.4	0.16	0.16	0.72
7,525.0	1.67	69.26	7,523.9	22.8	86.4	-20.6	0.29	-0.08	9.68
7,550.0	1.64	68.09	7,548.9	23.1	87.1	-20.9	0.18	-0.12	-4.68
7,575.0	1.72	67.11	7,573.9	23.4	87.7	-21.1	0.34	0.32	-3.92
7,600.0	1.65	66.45	7,598.9	23.6	88.4	-21.4	0.29	-0.28	-2.64
7,625.0	1.65	66.31	7,623.9	23.9	89.1	-21.7	0.02	0.00	-0.56
7,650.0	1.70	70.91	7,648.9	24.2	89.8	-21.9	0.57	0.20	18.40
7,675.0	1.64	68.84	7,673.9	24.4	90.4	-22.1	0.34	-0.24	-8.28
7,700.0	1.76	71.13	7,698.9	24.7	91.1	-22.4	0.55	0.48	9.16
7,725.0	1.72	67.81	7,723.9	25.0	91.9	-22.6	0.43	-0.16	-13.28
7,750.0	1.73	69.61	7,748.8	25.2	92.6	-22.9	0.22	0.04	7.20
7,775.0	1.81	69.21	7,773.8	25.5	93.3	-23.1	0.32	0.32	-1.60
7,800.0	1.77	68.32	7,798.8	25.8	94.0	-23.4	0.19	-0.16	-3.56
7,825.0	1.66	70.68	7,823.8	26.1	94.7	-23.7	0.52	-0.44	9.44
7,850.0	1.78	71.09	7,848.8	26.3	95.4	-23.9	0.48	0.48	1.64
7,875.0	1.86	71.61	7,873.8	26.6	96.2	-24.1	0.33	0.32	2.08



Survey Report

Company: NORTHERN DELAWARE BASIN
 Project: LEA COUNTY, NM
 Site: BULLDOG
 Well: FASCINATOR FED COM #704H
 Wellbore: OWB
 Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
 TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
 MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM_Users

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)
7,900.0	1.73	71.25	7,898.8	26.8	96.9	-24.3	0.52	-0.52	-1.44
7,925.0	1.63	72.31	7,923.8	27.0	97.6	-24.6	0.42	-0.40	4.24
7,950.0	1.51	75.10	7,948.7	27.2	98.3	-24.7	0.57	-0.48	11.16
7,975.0	1.48	74.89	7,973.7	27.4	98.9	-24.9	0.12	-0.12	-0.84
8,000.0	1.07	79.87	7,998.7	27.5	99.4	-25.0	1.70	-1.64	19.92
8,025.0	0.69	108.53	8,023.7	27.5	99.8	-25.0	2.28	-1.52	114.64
8,050.0	0.45	120.06	8,048.7	27.4	100.0	-24.9	1.06	-0.96	46.12
8,075.0	0.52	131.25	8,073.7	27.3	100.2	-24.7	0.47	0.28	44.76
8,100.0	0.54	123.61	8,098.7	27.2	100.4	-24.6	0.29	0.08	-30.56
8,125.0	0.48	130.12	8,123.7	27.0	100.6	-24.5	0.33	-0.24	26.04
8,150.0	0.48	130.53	8,148.7	26.9	100.7	-24.3	0.01	0.00	1.64
8,175.0	0.50	125.34	8,173.7	26.8	100.9	-24.2	0.19	0.08	-20.76
8,200.0	0.51	123.83	8,198.7	26.6	101.1	-24.1	0.07	0.04	-6.04
8,225.0	0.50	128.79	8,223.7	26.5	101.3	-23.9	0.18	-0.04	19.84
8,250.0	0.39	126.41	8,248.7	26.4	101.4	-23.8	0.45	-0.44	-9.52
8,275.0	0.46	124.83	8,273.7	26.3	101.6	-23.7	0.28	0.28	-6.32
8,300.0	0.57	127.91	8,298.7	26.1	101.7	-23.6	0.45	0.44	12.32
8,325.0	0.50	122.66	8,323.7	26.0	101.9	-23.4	0.34	-0.28	-21.00
8,350.0	0.48	127.77	8,348.7	25.9	102.1	-23.3	0.19	-0.08	20.44
8,375.0	0.46	127.69	8,373.7	25.8	102.3	-23.2	0.08	-0.08	-0.32
8,400.0	0.49	126.68	8,398.7	25.6	102.4	-23.0	0.12	0.12	-4.04
8,425.0	0.52	131.24	8,423.7	25.5	102.6	-22.9	0.20	0.12	18.24
8,450.0	0.58	130.99	8,448.7	25.3	102.8	-22.7	0.24	0.24	-1.00
8,475.0	0.51	125.27	8,473.7	25.2	103.0	-22.6	0.35	-0.28	-22.88
8,500.0	0.48	125.38	8,498.7	25.1	103.1	-22.4	0.12	-0.12	0.44
8,525.0	0.44	123.02	8,523.7	24.9	103.3	-22.3	0.18	-0.16	-9.44
8,550.0	0.55	129.22	8,548.7	24.8	103.5	-22.2	0.49	0.44	24.80
8,575.0	0.66	128.39	8,573.7	24.7	103.7	-22.0	0.44	0.44	-3.32
8,600.0	0.52	136.00	8,598.7	24.5	103.9	-21.8	0.64	-0.56	30.44
8,625.0	0.56	122.31	8,623.7	24.3	104.1	-21.7	0.54	0.16	-54.76
8,650.0	0.59	127.61	8,648.7	24.2	104.3	-21.5	0.24	0.12	21.20
8,675.0	0.62	125.94	8,673.7	24.0	104.5	-21.4	0.14	0.12	-6.68
8,700.0	0.57	122.46	8,698.7	23.9	104.7	-21.2	0.25	-0.20	-13.92
8,725.0	0.51	116.14	8,723.7	23.8	104.9	-21.1	0.34	-0.24	-25.28
8,750.0	0.55	123.25	8,748.7	23.7	105.1	-21.0	0.31	0.16	28.44
8,775.0	0.68	117.47	8,773.7	23.5	105.3	-20.9	0.58	0.52	-23.12
8,800.0	0.63	114.19	8,798.7	23.4	105.6	-20.7	0.25	-0.20	-13.12
8,825.0	0.63	107.26	8,823.7	23.3	105.8	-20.6	0.30	0.00	-27.72
8,850.0	0.69	112.03	8,848.7	23.2	106.1	-20.5	0.33	0.24	19.08
8,875.0	0.79	106.39	8,873.7	23.1	106.4	-20.4	0.49	0.40	-22.56
8,900.0	0.74	105.01	8,898.7	23.0	106.7	-20.3	0.21	-0.20	-5.52
8,925.0	0.78	101.97	8,923.7	22.9	107.1	-20.2	0.23	0.16	-12.16
8,950.0	0.76	99.94	8,948.7	22.9	107.4	-20.1	0.14	-0.08	-8.12



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FASCINATOR FED COM #704H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
8,975.0	0.73	91.83	8,973.7	22.8	107.7	-20.1	0.44	-0.12	-32.44
9,000.0	0.86	91.60	8,998.7	22.8	108.1	-20.1	0.52	0.52	-0.92
9,025.0	0.85	89.27	9,023.7	22.8	108.4	-20.1	0.14	-0.04	-9.32
9,050.0	0.85	89.48	9,048.7	22.8	108.8	-20.1	0.01	0.00	0.84
9,075.0	0.80	91.24	9,073.7	22.8	109.2	-20.1	0.22	-0.20	7.04
9,100.0	0.83	89.41	9,098.7	22.8	109.5	-20.0	0.16	0.12	-7.32
9,125.0	0.88	87.83	9,123.7	22.8	109.9	-20.0	0.22	0.20	-6.32
9,150.0	0.89	89.85	9,148.7	22.8	110.3	-20.0	0.13	0.04	8.08
9,175.0	0.97	87.95	9,173.7	22.8	110.7	-20.0	0.34	0.32	-7.60
9,200.0	0.92	90.00	9,198.7	22.9	111.1	-20.0	0.24	-0.20	8.20
9,225.0	0.97	84.61	9,223.7	22.9	111.5	-20.0	0.41	0.20	-21.56
9,250.0	1.02	85.24	9,248.7	22.9	111.9	-20.1	0.20	0.20	2.52
9,275.0	1.03	82.64	9,273.6	23.0	112.4	-20.1	0.19	0.04	-10.40
9,300.0	1.07	82.40	9,298.6	23.0	112.8	-20.2	0.16	0.16	-0.96
9,325.0	1.04	81.26	9,323.6	23.1	113.3	-20.2	0.15	-0.12	-4.56
9,350.0	1.09	81.09	9,348.6	23.2	113.8	-20.3	0.20	0.20	-0.68
9,375.0	1.14	82.82	9,373.6	23.2	114.2	-20.3	0.24	0.20	6.92
9,400.0	1.18	78.94	9,398.6	23.3	114.7	-20.4	0.35	0.16	-15.52
9,425.0	1.14	72.83	9,423.6	23.4	115.2	-20.5	0.52	-0.16	-24.44
9,450.0	1.14	75.76	9,448.6	23.6	115.7	-20.6	0.23	0.00	11.72
9,475.0	1.20	69.78	9,473.6	23.7	116.2	-20.8	0.54	0.24	-23.92
9,500.0	1.21	69.91	9,498.6	23.9	116.7	-20.9	0.04	0.04	0.52
9,525.0	1.21	68.88	9,523.6	24.1	117.2	-21.1	0.09	0.00	-4.12
9,550.0	1.22	70.08	9,548.6	24.3	117.7	-21.3	0.11	0.04	4.80
9,575.0	1.15	70.03	9,573.6	24.4	118.2	-21.4	0.28	-0.28	-0.20
9,600.0	1.10	65.89	9,598.6	24.6	118.6	-21.6	0.38	-0.20	-16.56
9,625.0	1.15	61.30	9,623.6	24.8	119.1	-21.8	0.41	0.20	-18.36
9,650.0	1.04	59.31	9,648.6	25.1	119.5	-22.0	0.47	-0.44	-7.96
9,675.0	1.10	58.72	9,673.6	25.3	119.9	-22.3	0.24	0.24	-2.36
9,700.0	1.04	54.15	9,698.6	25.6	120.3	-22.5	0.42	-0.24	-18.28
9,725.0	0.95	56.69	9,723.6	25.8	120.6	-22.8	0.40	-0.36	10.16
9,750.0	1.08	51.15	9,748.6	26.1	121.0	-23.0	0.65	0.52	-22.16
9,775.0	1.03	52.45	9,773.6	26.4	121.3	-23.3	0.22	-0.20	5.20
9,800.0	1.01	53.71	9,798.5	26.6	121.7	-23.6	0.12	-0.08	5.04
9,825.0	1.03	54.60	9,823.5	26.9	122.1	-23.8	0.10	0.08	3.56
9,850.0	1.01	55.26	9,848.5	27.2	122.4	-24.0	0.09	-0.08	2.64
9,875.0	1.10	54.10	9,873.5	27.4	122.8	-24.3	0.37	0.36	-4.64
9,900.0	1.03	54.13	9,898.5	27.7	123.2	-24.6	0.28	-0.28	0.12
9,925.0	1.09	51.35	9,923.5	28.0	123.5	-24.8	0.32	0.24	-11.12
9,950.0	1.01	48.95	9,948.5	28.3	123.9	-25.1	0.37	-0.32	-9.60
9,975.0	1.12	46.15	9,973.5	28.6	124.2	-25.4	0.49	0.44	-11.20
10,000.0	1.19	50.46	9,998.5	28.9	124.6	-25.8	0.45	0.28	17.24
10,025.0	1.12	49.48	10,023.5	29.2	125.0	-26.1	0.29	-0.28	-3.92
10,050.0	1.13	48.55	10,048.5	29.6	125.4	-26.4	0.08	0.04	-3.72



Survey Report

Company: NORTHERN DELAWARE BASIN
 Project: LEA COUNTY, NM
 Site: BULLDOG
 Well: FASCINATOR FED COM #704H
 Wellbore: OWB
 Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
 TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
 MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM_Users

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)
10,075.0	1.07	49.56	10,073.5	29.9	125.7	-26.7	0.25	-0.24	4.04
10,100.0	1.16	49.19	10,098.5	30.2	126.1	-27.0	0.36	0.36	-1.48
10,125.0	1.09	49.05	10,123.5	30.5	126.5	-27.3	0.28	-0.28	-0.56
10,150.0	1.09	48.15	10,148.5	30.8	126.8	-27.6	0.07	0.00	-3.60
10,175.0	1.09	45.27	10,173.5	31.2	127.2	-27.9	0.22	0.00	-11.52
10,200.0	1.06	47.11	10,198.5	31.5	127.5	-28.2	0.18	-0.12	7.36
10,225.0	0.97	42.43	10,223.5	31.8	127.8	-28.5	0.49	-0.36	-18.72
10,250.0	0.85	44.40	10,248.5	32.1	128.1	-28.8	0.50	-0.48	7.88
10,275.0	0.95	39.86	10,273.5	32.4	128.4	-29.1	0.49	0.40	-18.16
10,300.0	0.92	30.06	10,298.5	32.7	128.6	-29.4	0.65	-0.12	-39.20
10,325.0	1.00	27.03	10,323.5	33.1	128.8	-29.8	0.38	0.32	-12.12
10,350.0	1.00	19.14	10,348.5	33.5	129.0	-30.2	0.55	0.00	-31.56
10,375.0	1.25	9.54	10,373.5	33.9	129.1	-30.7	1.25	1.00	-38.40
10,400.0	1.48	6.01	10,398.4	34.5	129.2	-31.3	0.98	0.92	-14.12
10,425.0	1.49	3.75	10,423.4	35.2	129.2	-31.9	0.24	0.04	-9.04
10,450.0	1.45	4.21	10,448.4	35.8	129.3	-32.5	0.17	-0.16	1.84
10,475.0	1.53	4.40	10,473.4	36.5	129.3	-33.2	0.32	0.32	0.76
10,500.0	1.53	2.47	10,498.4	37.1	129.3	-33.9	0.21	0.00	-7.72
10,525.0	1.53	4.81	10,523.4	37.8	129.4	-34.5	0.25	0.00	9.36
10,550.0	1.51	3.23	10,548.4	38.5	129.4	-35.2	0.19	-0.08	-6.32
10,575.0	1.42	6.60	10,573.4	39.1	129.5	-35.8	0.50	-0.36	13.48
10,600.0	1.22	7.40	10,598.4	39.7	129.6	-36.4	0.80	-0.80	3.20
10,625.0	1.00	4.47	10,623.4	40.2	129.6	-36.9	0.91	-0.88	-11.72
10,650.0	0.95	358.49	10,648.4	40.6	129.6	-37.3	0.45	-0.20	-23.92
10,675.0	0.86	359.09	10,673.4	41.0	129.6	-37.7	0.36	-0.36	2.40
10,700.0	0.83	356.18	10,698.4	41.3	129.6	-38.1	0.21	-0.12	-11.64
10,725.0	0.79	355.90	10,723.4	41.7	129.6	-38.4	0.16	-0.16	-1.12
10,750.0	0.83	354.57	10,748.4	42.0	129.5	-38.8	0.18	0.16	-5.32
10,775.0	0.83	353.20	10,773.4	42.4	129.5	-39.1	0.08	0.00	-5.48
10,800.0	0.79	354.56	10,798.4	42.8	129.5	-39.5	0.18	-0.16	5.44
10,825.0	0.83	349.46	10,823.3	43.1	129.4	-39.8	0.33	0.16	-20.40
10,850.0	0.69	353.04	10,848.3	43.4	129.4	-40.1	0.59	-0.56	14.32
10,875.0	0.70	352.32	10,873.3	43.7	129.3	-40.5	0.05	0.04	-2.88
10,900.0	0.72	351.10	10,898.3	44.0	129.3	-40.8	0.10	0.08	-4.88
10,925.0	0.68	350.93	10,923.3	44.3	129.2	-41.1	0.16	-0.16	-0.68
10,950.0	0.70	351.15	10,948.3	44.6	129.2	-41.4	0.08	0.08	0.88
10,975.0	0.68	344.32	10,973.3	44.9	129.1	-41.7	0.34	-0.08	-27.32
11,000.0	0.68	340.88	10,998.3	45.2	129.0	-41.9	0.16	0.00	-13.76
11,025.0	0.61	341.50	11,023.3	45.5	128.9	-42.2	0.28	-0.28	2.48
11,050.0	0.46	337.64	11,048.3	45.7	128.9	-42.4	0.62	-0.60	-15.44
11,075.0	0.44	332.26	11,073.3	45.9	128.8	-42.6	0.19	-0.08	-21.52
11,100.0	0.37	318.87	11,098.3	46.0	128.7	-42.8	0.47	-0.28	-53.56
11,125.0	0.32	331.48	11,123.3	46.1	128.6	-42.9	0.36	-0.20	50.44



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FASCINATOR FED COM #704H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
11,150.0	0.32	309.35	11,148.3	46.3	128.5	-43.0	0.49	0.00	-88.52
11,175.0	0.30	316.85	11,173.3	46.3	128.4	-43.1	0.18	-0.08	30.00
11,200.0	0.31	320.11	11,198.3	46.4	128.3	-43.2	0.08	0.04	13.04
11,225.0	0.34	316.98	11,223.3	46.6	128.2	-43.3	0.14	0.12	-12.52
11,250.0	0.23	304.55	11,248.3	46.6	128.1	-43.4	0.50	-0.44	-49.72
11,275.0	0.10	295.49	11,273.3	46.7	128.1	-43.4	0.53	-0.52	-36.24
11,300.0	0.16	234.87	11,298.3	46.7	128.0	-43.4	0.56	0.24	-242.48
11,325.0	0.24	202.51	11,323.3	46.6	128.0	-43.3	0.54	0.32	-129.44
11,350.0	0.44	189.02	11,348.3	46.5	127.9	-43.2	0.86	0.80	-53.96
11,375.0	0.60	187.44	11,373.3	46.2	127.9	-43.0	0.64	0.64	-6.32
11,400.0	0.70	183.57	11,398.3	45.9	127.9	-42.7	0.44	0.40	-15.48
11,425.0	0.69	181.93	11,423.3	45.6	127.9	-42.4	0.09	-0.04	-6.56
11,450.0	0.64	191.66	11,448.3	45.4	127.8	-42.1	0.49	-0.20	38.92
11,475.0	0.71	183.23	11,473.3	45.1	127.8	-41.8	0.49	0.28	-33.72
11,500.0	0.72	183.80	11,498.3	44.8	127.8	-41.5	0.05	0.04	2.28
11,525.0	0.77	181.57	11,523.3	44.4	127.8	-41.2	0.23	0.20	-8.92
11,550.0	0.79	183.99	11,548.3	44.1	127.7	-40.8	0.15	0.08	9.68
11,575.0	0.80	194.20	11,573.3	43.7	127.7	-40.5	0.57	0.04	40.84
11,600.0	0.81	203.68	11,598.3	43.4	127.6	-40.2	0.53	0.04	37.92
11,625.0	0.88	211.58	11,623.3	43.1	127.4	-39.9	0.54	0.28	31.60
11,650.0	0.91	216.13	11,648.3	42.8	127.2	-39.5	0.31	0.12	18.20
11,675.0	0.95	221.27	11,673.3	42.4	126.9	-39.2	0.37	0.16	20.56
11,700.0	0.99	224.09	11,698.3	42.1	126.6	-38.9	0.25	0.16	11.28
11,725.0	0.99	225.34	11,723.3	41.8	126.3	-38.6	0.09	0.00	5.00
11,750.0	0.90	226.19	11,748.3	41.5	126.0	-38.3	0.36	-0.36	3.40
11,775.0	0.81	230.42	11,773.3	41.3	125.8	-38.1	0.44	-0.36	16.92
11,800.0	0.63	229.10	11,798.3	41.1	125.5	-37.9	0.72	-0.72	-5.28
11,825.0	0.54	229.07	11,823.3	40.9	125.3	-37.7	0.36	-0.36	-0.12
11,850.0	0.55	232.72	11,848.3	40.8	125.2	-37.6	0.14	0.04	14.60
11,875.0	0.47	243.72	11,873.3	40.7	125.0	-37.5	0.50	-0.32	44.00
11,900.0	0.47	220.76	11,898.3	40.5	124.8	-37.4	0.75	0.00	-91.84
11,922.0	0.46	227.88	11,920.3	40.4	124.7	-37.2	0.27	-0.05	32.36
12,097.0	0.51	208.15	12,095.3	39.2	123.8	-36.1	0.10	0.03	-11.27
12,129.0	0.42	209.50	12,127.3	39.0	123.7	-35.9	0.28	-0.28	4.22
12,161.0	2.00	188.87	12,159.3	38.4	123.5	-35.2	5.04	4.94	-64.47
12,192.0	5.64	198.91	12,190.2	36.4	122.9	-33.3	11.89	11.74	32.39
12,224.0	9.16	197.63	12,221.9	32.5	121.7	-29.4	11.01	11.00	-4.00
12,256.0	12.32	195.15	12,253.4	26.8	120.0	-23.7	9.98	9.88	-7.75
12,287.0	15.27	188.81	12,283.5	19.5	118.5	-16.5	10.68	9.52	-20.45
12,318.0	18.46	182.08	12,313.1	10.6	117.7	-7.6	12.05	10.29	-21.71
12,349.0	21.39	181.44	12,342.3	0.0	117.4	2.9	9.48	9.45	-2.06
12,381.0	22.94	180.41	12,371.9	-12.0	117.2	15.0	4.99	4.84	-3.22
12,412.0	25.72	178.84	12,400.1	-24.8	117.3	27.8	9.21	8.97	-5.06



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FASCINATOR FED COM #704H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

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)
12,444.0	28.95	179.44	12,428.6	-39.5	117.5	42.5	10.13	10.09	1.88
12,476.0	31.24	179.74	12,456.3	-55.6	117.6	58.5	7.17	7.16	0.94
12,508.0	34.80	179.83	12,483.1	-73.0	117.7	75.9	11.13	11.13	0.28
12,539.0	38.52	179.65	12,507.9	-91.5	117.8	94.4	12.00	12.00	-0.58
12,571.0	42.14	181.08	12,532.3	-112.2	117.6	115.1	11.68	11.31	4.47
12,581.5	43.03	181.01	12,540.1	-119.3	117.5	122.2	8.46	8.45	-0.63
FTP @ 12581.5' MD, 330' FNL, 1104' FWL									
12,602.0	44.76	180.89	12,554.8	-133.5	117.3	136.4	8.46	8.45	-0.60
12,634.0	47.32	180.18	12,577.0	-156.5	117.1	159.5	8.16	8.00	-2.22
12,665.0	50.15	179.62	12,597.5	-179.8	117.1	182.7	9.23	9.13	-1.81
12,697.0	53.97	177.36	12,617.2	-205.1	117.8	208.0	13.17	11.94	-7.06
12,729.0	57.92	176.51	12,635.1	-231.5	119.2	234.5	12.54	12.34	-2.66
12,761.0	61.08	175.26	12,651.3	-259.0	121.2	262.0	10.43	9.88	-3.91
12,792.0	63.90	174.07	12,665.6	-286.4	123.7	289.4	9.71	9.10	-3.84
12,824.0	65.48	174.09	12,679.3	-315.2	126.7	318.3	4.94	4.94	0.06
12,855.0	67.46	174.77	12,691.7	-343.5	129.5	346.6	6.70	6.39	2.19
12,887.0	69.25	174.58	12,703.5	-373.1	132.2	376.3	5.62	5.59	-0.59
12,918.0	71.75	174.50	12,713.8	-402.2	135.0	405.4	8.07	8.06	-0.26
12,950.0	75.26	173.77	12,722.9	-432.7	138.2	436.0	11.18	10.97	-2.28
12,981.0	78.11	174.52	12,730.1	-462.7	141.2	466.1	9.49	9.19	2.42
13,013.0	80.28	175.47	12,736.1	-494.0	144.0	497.5	7.38	6.78	2.97
13,045.0	82.69	176.13	12,740.8	-525.6	146.3	529.1	7.80	7.53	2.06
13,076.0	83.99	176.69	12,744.4	-556.3	148.2	559.9	4.56	4.19	1.81
13,108.0	85.43	177.27	12,747.4	-588.1	149.9	591.7	4.85	4.50	1.81
13,176.0	87.39	177.98	12,751.6	-655.9	152.7	659.6	3.06	2.88	1.04
13,272.0	88.68	177.48	12,754.9	-751.8	156.5	755.5	1.44	1.34	-0.52
13,366.0	87.65	178.52	12,757.9	-845.7	159.8	849.4	1.56	-1.10	1.11
13,461.0	87.06	178.64	12,762.3	-940.5	162.1	944.3	0.63	-0.62	0.13
13,556.0	88.32	180.06	12,766.1	-1,035.4	163.2	1,039.2	2.00	1.33	1.49
13,650.0	90.06	179.97	12,767.5	-1,129.4	163.2	1,133.2	1.85	1.85	-0.10
13,745.0	87.62	178.53	12,769.4	-1,224.4	164.4	1,228.2	2.98	-2.57	-1.52
13,840.0	87.36	178.35	12,773.5	-1,319.3	167.0	1,323.1	0.33	-0.27	-0.19
13,934.0	88.18	178.79	12,777.2	-1,413.2	169.4	1,417.0	0.99	0.87	0.47
14,029.0	87.14	177.47	12,781.1	-1,508.0	172.5	1,511.9	1.77	-1.09	-1.39
14,123.0	87.20	179.36	12,785.7	-1,601.9	175.1	1,605.8	2.01	0.06	2.01
14,217.0	88.46	180.03	12,789.3	-1,695.8	175.6	1,699.7	1.52	1.34	0.71
14,312.0	89.13	180.38	12,791.3	-1,790.8	175.2	1,794.6	0.80	0.71	0.37
14,407.0	87.06	180.66	12,794.4	-1,885.7	174.4	1,889.5	2.20	-2.18	0.29
14,501.0	86.13	180.83	12,800.0	-1,979.5	173.1	1,983.3	1.01	-0.99	0.18
14,596.0	88.15	179.56	12,804.8	-2,074.4	172.8	2,078.1	2.51	2.13	-1.34
14,690.0	84.31	178.46	12,810.9	-2,168.2	174.4	2,171.9	4.25	-4.09	-1.17
14,785.0	82.33	176.57	12,822.0	-2,262.4	178.5	2,266.2	2.87	-2.08	-1.99
14,879.0	83.94	176.97	12,833.2	-2,355.6	183.8	2,359.5	1.76	1.71	0.43
14,974.0	84.48	176.95	12,842.8	-2,450.0	188.8	2,454.0	0.57	0.57	-0.02



Survey Report

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Wellbore: OWB
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Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
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Survey Calculation Method: Minimum Curvature
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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)
15,067.0	84.42	177.34	12,851.8	-2,542.5	193.4	2,546.5	0.42	-0.06	0.42
15,162.0	84.25	177.21	12,861.2	-2,636.9	197.9	2,641.0	0.22	-0.18	-0.14
15,257.0	86.41	178.77	12,868.9	-2,731.5	201.2	2,735.7	2.80	2.27	1.64
15,352.0	86.25	179.10	12,875.0	-2,826.3	203.0	2,830.5	0.39	-0.17	0.35
15,447.0	87.42	179.06	12,880.2	-2,921.1	204.5	2,925.4	1.23	1.23	-0.04
15,541.0	88.57	179.61	12,883.5	-3,015.1	205.6	3,019.3	1.36	1.22	0.59
15,636.0	87.98	178.94	12,886.4	-3,110.0	206.8	3,114.2	0.94	-0.62	-0.71
15,730.0	88.57	179.23	12,889.2	-3,204.0	208.3	3,208.2	0.70	0.63	0.31
15,825.0	88.01	178.24	12,892.0	-3,298.9	210.4	3,303.2	1.20	-0.59	-1.04
15,919.0	88.54	181.07	12,894.9	-3,392.8	210.9	3,397.1	3.06	0.56	3.01
16,014.0	88.57	180.77	12,897.3	-3,487.8	209.4	3,492.0	0.32	0.03	-0.32
16,108.0	88.43	179.84	12,899.7	-3,581.8	208.9	3,585.9	1.00	-0.15	-0.99
16,202.0	89.27	179.91	12,901.6	-3,675.7	209.1	3,679.8	0.90	0.89	0.07
16,297.0	89.55	179.84	12,902.6	-3,770.7	209.3	3,774.8	0.30	0.29	-0.07
16,391.0	90.14	178.76	12,902.9	-3,864.7	210.5	3,868.8	1.31	0.63	-1.15
16,486.0	91.32	178.43	12,901.6	-3,959.7	212.8	3,963.8	1.29	1.24	-0.35
16,580.0	91.43	179.57	12,899.4	-4,053.6	214.5	4,057.8	1.22	0.12	1.21
16,675.0	89.27	179.78	12,898.8	-4,148.6	215.0	4,152.7	2.28	-2.27	0.22
16,769.0	88.15	180.18	12,900.9	-4,242.6	215.0	4,246.7	1.27	-1.19	0.43
16,864.0	88.21	179.83	12,903.9	-4,337.6	215.0	4,341.6	0.37	0.06	-0.37
16,958.0	88.24	179.69	12,906.9	-4,431.5	215.4	4,435.5	0.15	0.03	-0.15
17,052.0	89.66	179.59	12,908.6	-4,525.5	216.0	4,529.5	1.51	1.51	-0.11
17,147.0	89.61	179.19	12,909.2	-4,620.5	217.0	4,624.5	0.42	-0.05	-0.42
17,242.0	90.25	180.02	12,909.3	-4,715.5	217.7	4,719.5	1.10	0.67	0.87
17,337.0	88.88	180.42	12,910.0	-4,810.5	217.3	4,814.4	1.50	-1.44	0.42
17,431.0	88.63	180.54	12,912.1	-4,904.4	216.5	4,908.4	0.29	-0.27	0.13
17,526.0	86.25	180.07	12,916.3	-4,999.3	216.0	5,003.2	2.55	-2.51	-0.49
17,621.0	85.77	179.56	12,922.9	-5,094.1	216.3	5,098.0	0.74	-0.51	-0.54
17,715.0	86.05	179.07	12,929.6	-5,187.9	217.4	5,191.7	0.60	0.30	-0.52
17,810.0	86.75	178.80	12,935.6	-5,282.7	219.2	5,286.5	0.79	0.74	-0.28
17,904.0	87.68	178.50	12,940.1	-5,376.5	221.4	5,380.4	1.04	0.99	-0.32
17,999.0	87.90	178.25	12,943.8	-5,471.4	224.1	5,475.3	0.35	0.23	-0.26
18,094.0	88.57	178.15	12,946.7	-5,566.3	227.1	5,570.3	0.71	0.71	-0.11
18,188.0	88.01	179.27	12,949.5	-5,660.3	229.2	5,664.2	1.33	-0.60	1.19
18,283.0	88.29	178.76	12,952.6	-5,755.2	230.8	5,759.2	0.61	0.29	-0.54
18,378.0	89.83	178.68	12,954.2	-5,850.2	233.0	5,854.2	1.62	1.62	-0.08
18,472.0	90.03	180.60	12,954.3	-5,944.1	233.5	5,948.2	2.05	0.21	2.04
18,567.0	90.06	180.42	12,954.2	-6,039.1	232.7	6,043.1	0.19	0.03	-0.19
18,662.0	91.82	180.53	12,952.7	-6,134.1	231.9	6,138.0	1.86	1.85	0.12
18,757.0	92.16	180.70	12,949.4	-6,229.1	230.9	6,232.9	0.40	0.36	0.18
18,851.0	89.47	178.91	12,948.0	-6,323.0	231.2	6,326.9	3.44	-2.86	-1.90
18,946.0	90.00	179.36	12,948.5	-6,418.0	232.6	6,421.9	0.73	0.56	0.47
19,040.0	88.04	178.94	12,950.1	-6,512.0	234.0	6,515.8	2.13	-2.09	-0.45



Survey Report

Company: NORTHERN DELAWARE BASIN
 Project: LEA COUNTY, NM
 Site: BULLDOG
 Well: FASCINATOR FED COM #704H
 Wellbore: OWB
 Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
 TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
 MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM_Users

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)
19,134.0	89.44	179.37	12,952.1	-6,606.0	235.4	6,609.8	1.56	1.49	0.46
19,229.0	90.25	178.70	12,952.4	-6,700.9	237.0	6,704.8	1.11	0.85	-0.71
19,324.0	89.24	177.85	12,952.8	-6,795.9	239.9	6,799.8	1.39	-1.06	-0.89
19,419.0	90.67	180.08	12,952.9	-6,890.9	241.6	6,894.8	2.79	1.51	2.35
19,514.0	89.83	180.01	12,952.5	-6,985.9	241.5	6,989.7	0.89	-0.88	-0.07
19,609.0	88.57	180.23	12,953.8	-7,080.9	241.3	7,084.7	1.35	-1.33	0.23
19,703.0	87.23	179.84	12,957.2	-7,174.8	241.3	7,178.6	1.48	-1.43	-0.41
19,798.0	91.54	182.50	12,958.3	-7,269.7	239.3	7,273.5	5.33	4.54	2.80
19,892.0	93.19	183.58	12,954.4	-7,363.5	234.4	7,367.1	2.10	1.76	1.15
19,987.0	93.08	183.30	12,949.2	-7,458.2	228.7	7,461.6	0.32	-0.12	-0.29
20,082.0	94.46	182.20	12,942.9	-7,552.9	224.1	7,556.1	1.86	1.45	-1.16
20,177.0	94.71	181.09	12,935.3	-7,647.5	221.4	7,650.7	1.19	0.26	-1.17
20,274.0	91.93	180.16	12,929.7	-7,744.4	220.3	7,747.5	3.02	-2.87	-0.96
20,369.0	90.70	178.40	12,927.5	-7,839.3	221.5	7,842.4	2.26	-1.29	-1.85
20,464.0	90.42	178.42	12,926.6	-7,934.3	224.2	7,937.4	0.30	-0.29	0.02
20,558.0	90.08	179.11	12,926.2	-8,028.3	226.2	8,031.4	0.82	-0.36	0.73
20,653.0	89.38	178.36	12,926.7	-8,123.2	228.3	8,126.4	1.08	-0.74	-0.79
20,748.0	89.24	178.99	12,927.8	-8,218.2	230.5	8,221.4	0.68	-0.15	0.66
20,841.0	88.99	179.28	12,929.2	-8,311.2	231.9	8,314.4	0.41	-0.27	0.31
20,936.0	89.13	179.58	12,930.8	-8,406.2	232.8	8,409.4	0.35	0.15	0.32
21,031.0	90.25	180.61	12,931.3	-8,501.2	232.7	8,504.3	1.60	1.18	1.08
21,125.0	89.33	180.29	12,931.7	-8,595.2	231.9	8,598.3	1.04	-0.98	-0.34
21,220.0	89.86	180.63	12,932.3	-8,690.2	231.2	8,693.2	0.66	0.56	0.36
21,315.0	89.89	180.51	12,932.5	-8,785.1	230.2	8,788.2	0.13	0.03	-0.13
21,410.0	89.38	180.01	12,933.1	-8,880.1	229.8	8,883.1	0.75	-0.54	-0.53
21,505.0	90.56	179.59	12,933.2	-8,975.1	230.1	8,978.1	1.32	1.24	-0.44
21,599.0	90.14	179.11	12,932.6	-9,069.1	231.2	9,072.1	0.68	-0.45	-0.51
21,694.0	89.55	178.80	12,932.9	-9,164.1	232.9	9,167.1	0.70	-0.62	-0.33
21,788.0	92.10	178.36	12,931.5	-9,258.1	235.3	9,261.1	2.75	2.71	-0.47
21,883.0	93.39	177.56	12,927.0	-9,352.9	238.6	9,355.9	1.60	1.36	-0.84
21,977.0	92.32	177.61	12,922.3	-9,446.7	242.6	9,449.8	1.14	-1.14	0.05
22,072.0	88.91	177.37	12,921.3	-9,541.6	246.8	9,544.8	3.60	-3.59	-0.25
22,167.0	89.55	177.66	12,922.5	-9,636.5	250.9	9,639.8	0.74	0.67	0.31
22,261.0	89.38	178.55	12,923.4	-9,730.4	254.0	9,733.7	0.96	-0.18	0.95
22,356.0	89.13	178.25	12,924.7	-9,825.4	256.6	9,828.7	0.41	-0.26	-0.32
22,450.0	89.22	179.96	12,926.0	-9,919.4	258.1	9,922.7	1.82	0.10	1.82
22,544.0	88.49	179.81	12,927.9	-10,013.3	258.3	10,016.7	0.79	-0.78	-0.16
22,562.0	88.94	180.06	12,928.3	-10,031.3	258.3	10,034.7	2.84	2.47	1.40
LTP @ 22562.0' MD, 330' FSL, 1148' FWL									
22,622.0	90.42	180.90	12,928.6	-10,091.3	257.8	10,094.6	2.84	2.47	1.40
22,679.0	90.42	180.90	12,928.2	-10,148.3	256.9	10,151.6	0.00	0.00	0.00



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FASCINATOR FED COM #704H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FASCINATOR FED COM #704H
TVD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
MD Reference: RKB=3370+29 @ 3399.0usft (NORAM 23)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM_Users

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
12,581.5	12,540.1	-119.3	117.5	FTP @ 12581.5' MD, 330' FNL, 1104' FWL
22,562.0	12,928.3	-10,031.3	258.3	LTP @ 22562.0' MD, 330' FSL, 1148' FWL

Checked By: _____ Approved By: _____ Date: _____

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	22,572	25	5	22,337	62	5	22,177	25	5	21,979	25	5	21,782	25	5
	22,547	24	5	22,327	10	5	22,152	24	5	21,955	25	5	21,757	24	5
	22,523	25	5	22,317	17	5	22,128	25	5	21,930	25	5	21,733	25	5
	22,498	25	5	22,300	24	5	22,103	25	5	21,905	24	5	21,708	25	5
	22,473	24	4	22,276	25	4	22,078		4	21,881	22	4	21,683	25	4
	22,449	25	4	22,251	25	4	22,056	27	4	21,859	28	4	21,658	24	4
	22,424	25	4	22,226	24	4	22,029	25	4	21,831	24	4	21,634	25	4
	22,399		4	22,202		4	22,004		4	21,807		4	21,609		4
	Plug to Plug	99	36	Plug to Plug	47	36	Plug to Plug	86	36	Plug to Plug	87	36	Plug to Plug	86	36
	Frac Plug	22,597	Total Shots	Frac Plug	22,347	Total Shots	Frac Plug	22,189	Total Shots	Frac Plug	21,992	Total Shots	Frac Plug	21,794	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	21,584	25	5	21,387	25	5	21,179	35	5	20,986	30	5	20,794	25	5
	21,560	28	5	21,362	25	5	21,165	25	5	20,967	25	5	20,770	25	5
	21,532	22	5	21,337	24	5	21,140	20	5	20,942	24	5	20,745	25	5
	21,510	24	5	21,313	25	5	21,120	29	5	20,918	25	5	20,720	25	5
	21,486	25	4	21,288	25	4	21,091	25	4	20,893	25	4	20,695	24	4
	21,461	25	4	21,263	29	4	21,066	25	4	20,868	24	4	20,671	25	4
	21,436	24	4	21,234	20	4	21,041	25	4	20,844	25	4	20,646	25	4
	21,412		4	21,214		4	21,016		4	20,819		4	20,621		4
	Plug to Plug	87	36	Plug to Plug	86	36	Plug to Plug	70	36	Plug to Plug	86	36	Plug to Plug	87	36
	Frac Plug	21,597	Total Shots	Frac Plug	21,399	Total Shots	Frac Plug	21,190	Total Shots	Frac Plug	21,004	Total Shots	Frac Plug	20,807	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	20,597	24	5	20,399	25	5	20,202	24	5	19,971	58	5	19,804	27	5
	20,574	27	5	20,375	25	5	20,177	25	5	19,951	20	5	19,782	25	5
	20,547	24	5	20,350	28	5	20,152	24	5	19,931	20	5	19,757	26	5
	20,523	25	5	20,322	22	5	20,128	25	5	19,911	20	5	19,731	23	5
	20,498	25	4	20,300	24	4	20,103	23	4	19,891	20	4	19,708	25	4
	20,473	27	4	20,276	25	4	20,080	26	4	19,871	20	4	19,683	25	4
	20,446	22	4	20,251	25	4	20,054	25	4	19,851	20	4	19,658	24	4
	20,424		4	20,226		4	20,029		4	19,831		4	19,634		4
	Plug to Plug	85	36	Plug to Plug	94	36	Plug to Plug	86	36	Plug to Plug	65	36	Plug to Plug	81	36
	Frac Plug	20,608	Total Shots	Frac Plug	20,416	Total Shots	Frac Plug	20,214	Total Shots	Frac Plug	19,976	Total Shots	Frac Plug	19,812	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	19,609	25	5	19,412	24	5	19,214	28	5	19,016	25	5	18,819	25	5
	19,584	24	5	19,387	29	5	19,189	24	5	18,992	25	5	18,794	24	5
	19,560	25	5	19,358	21	5	19,165	25	5	18,967	23	5	18,770	25	5
	19,535	25	5	19,337	24	5	19,140	25	5	18,944	26	5	18,745	25	5
	19,510	24	4	19,313	25	4	19,115	24	4	18,918	25	4	18,720	22	4
	19,486	25	4	19,288	25	4	19,091	21	4	18,893	25	4	18,698	27	4
	19,461	25	4	19,263	21	4	19,070	29	4	18,868	24	4	18,671	25	4
	19,436		4	19,242		4	19,041		4	18,844		4	18,646		4
	Plug to Plug	86	36	Plug to Plug	87	36	Plug to Plug	86	36	Plug to Plug	85	36	Plug to Plug	86	36
	Frac Plug	19,621	Total Shots	Frac Plug	19,424	Total Shots	Frac Plug	19,226	Total Shots	Frac Plug	19,029	Total Shots	Frac Plug	18,831	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	18,621	25	5	18,416	33	5	18,222	29	5	18,029	25	5	17,828	28	5
	18,597	25	5	18,399	24	5	18,202	25	5	18,004	25	5	17,804	22	5
	18,572	25	5	18,375	27	5	18,177	25	5	17,979	24	5	17,782	25	5
	18,547	27	5	18,348	23	5	18,152	24	5	17,955	21	5	17,757	29	5
	18,520	22	4	18,325	25	4	18,128	23	4	17,934	29	4	17,728	20	4
	18,498	25	4	18,300	24	4	18,105	27	4	17,905	24	4	17,708	25	4
	18,473	24	4	18,276	25	4	18,078	24	4	17,881	25	4	17,683	25	4
	18,449		4	18,251		4	18,054		4	17,856		4	17,658		4
	Plug to Plug	87	36	Plug to Plug	78	36	Plug to Plug	87	36	Plug to Plug	86	36	Plug to Plug	83	36
	Frac Plug	18,634	Total Shots	Frac Plug	18,426	Total Shots	Frac Plug	18,239	Total Shots	Frac Plug	18,041	Total Shots	Frac Plug	17,840	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	17,628	30	5	17,434	27	5	17,239	24	5	17,041	27	5	16,844	24	5
	17,609	25	5	17,412	25	5	17,214	23	5	17,017	25	5	16,819	25	5
	17,584	26	5	17,387	25	5	17,191	26	5	16,992	25	5	16,794	24	5
	17,558	23	5	17,362	24	5	17,165	25	5	16,967	25	5	16,770	25	5
	17,535	25	4	17,338	26	4	17,140	25	4	16,942	24	4	16,745	27	4
	17,510	24	4	17,312	24	4	17,115	24	4	16,918	27	4	16,718	22	4
	17,486	25	4	17,288	25	4	17,091	23	4	16,891	23	4	16,696	25	4
	17,461		4	17,263		4	17,068		4	16,868		4	16,671		4
	Plug to Plug	82	36	Plug to Plug	87	36	Plug to Plug	86	36	Plug to Plug	87	36	Plug to Plug	88	36
	Frac Plug	17,640	Total Shots	Frac Plug	17,449	Total Shots	Frac Plug	17,251	Total Shots	Frac Plug	17,054	Total Shots	Frac Plug	16,858	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	16,646	25	5	16,449	29	5	16,251	25	5	16,054	26	5	15,856	25	5
	16,621	26	5	16,424	25	5	16,226	28	5	16,029	25	5	15,829	22	5
	16,595	23	5	16,399	24	5	16,198	21	5	16,004	24	5	15,807	25	5
	16,572	25	5	16,375	25	5	16,177	25	5	15,980	29	5	15,782	25	5
	16,547	24	4	16,350	25	4	16,152	24	4	15,951	21	4	15,757	24	4
	16,523	25	4	16,325	25	4	16,128	25	4	15,930	25	4	15,733	25	4
	16,498	20	4	16,300	24	4	16,103	23	4	15,905	24	4	15,708	25	4
	16,478		4	16,276		4	16,080		4	15,881		4	15,683		4
	Plug to Plug	87	36	Plug to Plug	86	36	Plug to Plug	86	36	Plug to Plug	86	36	Plug to Plug	86	36
	Frac Plug	16,659	Total Shots	Frac Plug	16,461	Total Shots	Frac Plug	16,263	Total Shots	Frac Plug	16,066	Total Shots	Frac Plug	15,868	Total Shots

From Bottom to Top	Stage 36	Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	15,657	26	5	15,461	29	5	15,263	25	5	15,064	27	5	14,868	25	5
	15,634	25	5	15,436	24	5	15,234	20	5	15,041	24	5	14,844	25	5
	15,609	25	5	15,412	25	5	15,214	25	5	15,017	25	5	14,819	25	5
	15,584	24	5	15,387	21	5	15,189	24	5	14,992	25	5	14,794	26	5
	15,560	25	4	15,366	28	4	15,165	25	4	14,967	29	4	14,768	23	4
	15,535	25	4	15,338	25	4	15,140	25	4	14,938	20	4	14,745	25	4
	15,510	20	4	15,313	25	4	15,115	24	4	14,918	25	4	14,720	24	4
	15,490		4	15,288		4	15,091		4	14,893		4	14,696		4
	Plug to Plug	87	36	Plug to Plug	86	36	Plug to Plug	87	36	Plug to Plug	86	36	Plug to Plug	87	36
	Frac Plug	15,671	Total Shots	Frac Plug	15,473	Total Shots	Frac Plug	15,276	Total Shots	Frac Plug	15,078	Total Shots	Frac Plug	14,881	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots
	14,663	33	5	14,451	47	5	14,276	26	5	14,078	25	5	13,876	29	5
	14,646	25	5	14,434	23	5	14,251	25	5	14,054	25	5	13,856	25	5
	14,621	24	5	14,411	22	5	14,226	24	5	14,029	25	5	13,831	24	5
	14,597	25	5	14,389	22	5	14,202	22	5	14,004	24	5	13,807	25	5
	14,572	25	4	14,367	23	4	14,180	28	4	13,980	25	4	13,782	25	4
	14,547	24	4	14,344	23	4	14,152	24	4	13,955	25	4	13,757	24	4
	14,523	25	4	14,321	19	4	14,128	25	4	13,930	25	4	13,733	25	4
	14,498		4	14,302		4	14,103		4	13,905		4	13,708		4
	Plug to Plug	77	36	Plug to Plug	73	36	Plug to Plug	86	36	Plug to Plug	87	36	Plug to Plug	80	36
	Frac Plug	14,674	Total Shots	Frac Plug	14,462	Total Shots	Frac Plug	14,288	Total Shots	Frac Plug	14,091	Total Shots	Frac Plug	13,887	Total Shots

From Bottom to Top		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots		Distance Between Perfs	Shots	Stage 50	Distance Between Perfs	Shots
	13,682	26	5	13,481	29	5	13,288	23	5	13,086	29	5		12918	5
	13,659	25	5	13,461	25	5	13,263	22	5	13,069	28	5			5
	13,634	25	5	13,436	24	5	13,241	27	5	13,041	24	5			5
	13,609	25	5	13,412	25	5	13,214	25	5	13,017	25	5			5
	13,584	24	4	13,387	25	4	13,189	24	4	12,992	25	4			4
	13,560	25	4	13,362	24	4	13,165	25	4	12,967	24	4			4
	13,535	25	4	13,338	27	4	13,140	25	4	12,943	25	4			4
	13,510		4	13,311		4	13,115		4	12,918		4			4
	Plug to Plug	87	36	Plug to Plug	86	36	Plug to Plug	87	36	Plug to Plug	83	36	Plug to Plug	0	36
	Frac Plug	13,698	Total Shots	Frac Plug	13,498	Total Shots	Frac Plug	13,301	Total Shots	Frac Plug	13,100	Total Shots	Frac Plug		Total Shots

Fascinator Federal Com #704H

<u>Perfs</u>	<u>7 1/2% Acid (Gal)</u>	<u>Sand (#)</u>	<u>Fluid (Gal)</u>
1	1512	399423	364392
2	1512	425353	399672
3	1512	403577	382410
4	1512	392913	345912
5	1512	390710	358932
6	1512	399157	425586
7	1512	403210	360591
8	1512	405270	374598
9	1512	400981	365064
10	1512	405470	357336
11	1512	393506	357042
12	1512	410248	357882
13	1512	396200	341628
14	1512	399840	371196
15	1512	404054	364770
16	1512	400825	349356
17	1512	403648	333480
18	1512	415954	414372
19	1512	412500	356832
20	1512	399878	377580
21	1512	391241	357294
22	1512	401090	356034
23	1512	393274	356496
24	1512	402348	347088
25	1512	406389	344274
26	1512	401599	344526
27	1512	408823	357042
28	1512	403455	361872
29	1512	404834	353388
30	1512	414689	356790
31	1512	401934	349818
32	1512	411741	355908
33	1512	404640	388038
34	1512	403292	339192
35	1512	394900	337218
36	1512	401068	332598
37	1512	402398	348894
38	1512	394161	331800
39	1512	406914	342720
40	1512	404800	332976
41	1512	403514	394590
42	1512	415155	350280
43	1512	400573	336966
44	1512	395906	345618
45	1512	393584	341712
46	1512	391662	337092
47	1512	393417	336840
48	1512	396729	365190
49	1512	388055	329616
Totals	71064	19,295,479	14,113,344