



CONCHO

NORTHERN DELAWARE BASIN

LEA COUNTY, NM

BULLDOG

EIDER FED #304H

OWB

Design: ACTUAL WELLPATH

Standard Survey Report

25 June, 2018

HOBBS OCD

MAY 01 2019

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Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: EIDER FED #304H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well EIDER FED #304H
TVD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
MD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
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	EIDER FED #304H					
Well Position	+N/-S	0.0 usft	Northing:	425,253.70 usft	Latitude:	32° 10' 2.199 N
	+E/-W	0.0 usft	Easting:	712,390.50 usft	Longitude:	103° 38' 49.017 W
Position Uncertainty		3.0 usft	Wellhead Elevation:	usft	Ground Level:	3,525.7 usft

Wellbore	OWB					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	WMM2015	10/23/2017	6.97	59.98	47,847.21897176	

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	1.79	

Survey Program	Date 6/12/2018				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	8,950.0	GYRO - INTERMEDIATE (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
8,998.0	17,046.0	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	0.19	319.44	100.0	0.1	-0.1	0.1	0.19	0.19	0.00
125.0	0.29	311.24	125.0	0.2	-0.2	0.2	0.42	0.40	-32.80
150.0	0.25	344.13	150.0	0.3	-0.2	0.3	0.63	-0.16	131.56
175.0	0.30	326.12	175.0	0.4	-0.3	0.4	0.40	0.20	-72.04
200.0	0.53	305.58	200.0	0.5	-0.4	0.5	1.08	0.92	-82.16
225.0	0.23	309.41	225.0	0.6	-0.6	0.6	1.20	-1.20	15.32
250.0	0.34	303.25	250.0	0.7	-0.7	0.7	0.46	0.44	-24.64



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RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)

RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)

Grid

Minimum Curvature

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)
275.0	0.47	298.94	275.0	0.8	-0.8	0.8	0.53	0.52	-17.24
300.0	0.16	313.59	300.0	0.9	-0.9	0.8	1.27	-1.24	58.60
325.0	0.32	304.52	325.0	0.9	-1.0	0.9	0.66	0.64	-36.28
350.0	0.40	289.28	350.0	1.0	-1.1	1.0	0.50	0.32	-60.96
375.0	0.24	296.08	375.0	1.0	-1.3	1.0	0.66	-0.64	27.20
400.0	0.24	283.48	400.0	1.1	-1.4	1.0	0.21	0.00	-50.40
425.0	0.40	278.29	425.0	1.1	-1.5	1.1	0.65	0.64	-20.76
450.0	0.39	278.38	450.0	1.1	-1.7	1.1	0.04	-0.04	0.36
475.0	0.38	276.68	475.0	1.1	-1.9	1.1	0.06	-0.04	-6.80
500.0	0.45	269.42	500.0	1.2	-2.0	1.1	0.35	0.28	-29.04
525.0	0.44	249.20	525.0	1.1	-2.2	1.1	0.63	-0.04	-80.88
550.0	0.48	265.02	550.0	1.1	-2.4	1.0	0.53	0.16	63.28
575.0	0.56	254.95	575.0	1.0	-2.6	1.0	0.48	0.32	-40.28
600.0	0.55	253.28	600.0	1.0	-2.9	0.9	0.08	-0.04	-6.68
625.0	0.51	249.69	625.0	0.9	-3.1	0.8	0.21	-0.16	-14.36
650.0	0.49	254.55	650.0	0.8	-3.3	0.7	0.19	-0.08	19.44
675.0	0.47	257.87	675.0	0.8	-3.5	0.7	0.14	-0.08	13.28
700.0	0.59	254.38	700.0	0.7	-3.7	0.6	0.50	0.48	-13.96
725.0	0.80	256.33	725.0	0.6	-4.0	0.5	0.85	0.84	7.80
750.0	0.78	250.71	750.0	0.6	-4.3	0.4	0.32	-0.08	-22.48
775.0	0.86	254.19	775.0	0.4	-4.7	0.3	0.38	0.32	13.92
800.0	0.89	248.85	800.0	0.3	-5.0	0.2	0.35	0.12	-21.36
825.0	0.83	244.71	825.0	0.2	-5.4	0.0	0.35	-0.24	-16.56
850.0	0.87	253.62	850.0	0.0	-5.7	-0.1	0.55	0.16	35.64
875.0	0.91	254.06	875.0	-0.1	-6.1	-0.3	0.16	0.16	1.76
900.0	0.95	250.68	900.0	-0.2	-6.5	-0.4	0.27	0.16	-13.52
925.0	1.00	249.84	925.0	-0.3	-6.9	-0.5	0.21	0.20	-3.36
950.0	1.06	252.22	950.0	-0.5	-7.3	-0.7	0.29	0.24	9.52
975.0	1.00	251.48	975.0	-0.6	-7.8	-0.9	0.25	-0.24	-2.96
1,000.0	0.99	250.05	999.9	-0.8	-8.2	-1.0	0.11	-0.04	-5.72
1,025.0	1.05	251.74	1,024.9	-0.9	-8.6	-1.2	0.27	0.24	6.76
1,050.0	1.07	247.69	1,049.9	-1.1	-9.0	-1.3	0.31	0.08	-16.20
1,075.0	1.22	246.92	1,074.9	-1.3	-9.5	-1.6	0.60	0.60	-3.08
1,100.0	1.27	235.39	1,099.9	-1.5	-9.9	-1.8	1.02	0.20	-46.12
1,125.0	1.76	216.11	1,124.9	-2.0	-10.4	-2.3	2.80	1.96	-77.12
1,150.0	2.13	208.35	1,149.9	-2.7	-10.9	-3.0	1.81	1.48	-31.04
1,175.0	2.28	205.64	1,174.9	-3.6	-11.3	-3.9	0.73	0.60	-10.84
1,200.0	2.30	196.84	1,199.9	-4.5	-11.6	-4.9	1.41	0.08	-35.20
1,225.0	2.48	184.07	1,224.8	-5.5	-11.8	-5.9	2.24	0.72	-51.08
1,250.0	2.61	177.46	1,249.8	-6.6	-11.8	-7.0	1.28	0.52	-26.44
1,275.0	2.64	179.75	1,274.8	-7.8	-11.8	-8.1	0.44	0.12	9.16
1,300.0	2.67	174.86	1,299.8	-8.9	-11.8	-9.3	0.91	0.12	-19.56



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1,325.0	2.72	175.89	1,324.7	-10.1	-11.7	-10.4	0.28	0.20	4.12
1,350.0	2.72	173.59	1,349.7	-11.3	-11.6	-11.6	0.44	0.00	-9.20
1,375.0	2.72	174.64	1,374.7	-12.5	-11.4	-12.8	0.20	0.00	4.20
1,400.0	2.67	176.91	1,399.7	-13.6	-11.3	-14.0	0.47	-0.20	9.08
1,425.0	2.71	179.29	1,424.6	-14.8	-11.3	-15.1	0.47	0.16	9.52
1,450.0	2.79	181.33	1,449.6	-16.0	-11.3	-16.3	0.51	0.32	8.16
1,475.0	2.76	179.41	1,474.6	-17.2	-11.3	-17.6	0.39	-0.12	-7.68
1,500.0	2.85	178.14	1,499.5	-18.4	-11.3	-18.8	0.44	0.36	-5.08
1,525.0	2.75	177.45	1,524.5	-19.6	-11.3	-20.0	0.42	-0.40	-2.76
1,550.0	2.84	177.91	1,549.5	-20.9	-11.2	-21.2	0.37	0.36	1.84
1,575.0	2.83	177.14	1,574.5	-22.1	-11.1	-22.4	0.16	-0.04	-3.08
1,600.0	2.76	180.11	1,599.4	-23.3	-11.1	-23.7	0.64	-0.28	11.88
1,625.0	2.79	176.59	1,624.4	-24.5	-11.1	-24.9	0.69	0.12	-14.08
1,650.0	2.81	178.75	1,649.4	-25.8	-11.0	-26.1	0.43	0.08	8.64
1,675.0	2.77	181.57	1,674.3	-27.0	-11.0	-27.3	0.57	-0.16	11.28
1,700.0	2.83	180.03	1,699.3	-28.2	-11.1	-28.5	0.38	0.24	-6.16
1,725.0	2.83	178.98	1,724.3	-29.4	-11.0	-29.8	0.21	0.00	-4.20
1,750.0	2.90	174.30	1,749.2	-30.7	-11.0	-31.0	0.98	0.28	-18.72
1,775.0	3.09	167.39	1,774.2	-32.0	-10.8	-32.3	1.63	0.76	-27.64
1,800.0	3.60	157.47	1,799.2	-33.3	-10.3	-33.6	3.08	2.04	-39.68
1,825.0	3.75	155.05	1,824.1	-34.8	-9.7	-35.1	0.86	0.60	-9.68
1,850.0	3.66	150.55	1,849.1	-36.2	-8.9	-36.5	1.22	-0.36	-18.00
1,875.0	3.60	141.27	1,874.0	-37.5	-8.0	-37.8	2.36	-0.24	-37.12
1,900.0	3.54	134.27	1,899.0	-38.7	-7.0	-38.9	1.76	-0.24	-28.00
1,925.0	3.47	129.86	1,923.9	-39.7	-5.9	-39.9	1.11	-0.28	-17.64
1,950.0	3.08	124.44	1,948.9	-40.6	-4.7	-40.7	1.99	-1.56	-21.68
1,975.0	2.74	117.36	1,973.8	-41.2	-3.7	-41.3	1.98	-1.36	-28.32
2,000.0	2.57	111.84	1,998.8	-41.7	-2.6	-41.8	1.23	-0.68	-22.08
2,025.0	2.47	108.73	2,023.8	-42.1	-1.6	-42.1	0.68	-0.40	-12.44
2,050.0	2.53	106.74	2,048.8	-42.4	-0.5	-42.4	0.42	0.24	-7.96
2,075.0	2.37	106.67	2,073.7	-42.7	0.5	-42.7	0.64	-0.64	-0.28
2,100.0	2.35	107.03	2,098.7	-43.0	1.5	-43.0	0.10	-0.08	1.44
2,125.0	2.42	108.34	2,123.7	-43.4	2.5	-43.3	0.35	0.28	5.24
2,150.0	2.28	107.35	2,148.7	-43.7	3.4	-43.5	0.58	-0.56	-3.96
2,175.0	2.14	107.11	2,173.7	-44.0	4.4	-43.8	0.56	-0.56	-0.96
2,200.0	1.44	116.91	2,198.7	-44.2	5.1	-44.1	3.05	-2.80	39.20
2,225.0	1.26	123.62	2,223.6	-44.5	5.6	-44.3	0.96	-0.72	26.84
2,250.0	1.13	118.39	2,248.6	-44.8	6.0	-44.6	0.68	-0.52	-20.92
2,275.0	1.18	118.31	2,273.6	-45.0	6.5	-44.8	0.20	0.20	-0.32
2,300.0	1.14	120.76	2,298.6	-45.3	6.9	-45.1	0.25	-0.16	9.80
2,325.0	1.19	120.78	2,323.6	-45.6	7.4	-45.3	0.20	0.20	0.08
2,350.0	1.09	119.57	2,348.6	-45.8	7.8	-45.5	0.41	-0.40	-4.84



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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)
2,375.0	1.15	123.37	2,373.6	-46.1	8.2	-45.8	0.38	0.24	15.20
2,400.0	1.04	124.42	2,398.6	-46.3	8.6	-46.0	0.45	-0.44	4.20
2,425.0	1.30	126.06	2,423.6	-46.6	9.0	-46.3	1.05	1.04	6.56
2,450.0	1.33	126.21	2,448.6	-47.0	9.5	-46.6	0.12	0.12	0.60
2,475.0	1.29	124.28	2,473.6	-47.3	10.0	-47.0	0.24	-0.16	-7.72
2,500.0	1.26	127.20	2,498.6	-47.6	10.4	-47.3	0.29	-0.12	11.68
2,525.0	1.31	133.14	2,523.6	-48.0	10.8	-47.6	0.57	0.20	23.76
2,550.0	1.43	134.02	2,548.6	-48.4	11.3	-48.0	0.49	0.48	3.52
2,575.0	1.50	132.87	2,573.6	-48.8	11.7	-48.4	0.30	0.28	-4.60
2,600.0	1.46	132.02	2,598.6	-49.3	12.2	-48.9	0.18	-0.16	-3.40
2,625.0	1.37	133.43	2,623.5	-49.7	12.7	-49.3	0.39	-0.36	5.64
2,650.0	1.48	137.81	2,648.5	-50.1	13.1	-49.7	0.62	0.44	17.52
2,675.0	1.62	135.42	2,673.5	-50.6	13.6	-50.2	0.62	0.56	-9.56
2,700.0	1.66	136.49	2,698.5	-51.1	14.1	-50.7	0.20	0.16	4.28
2,725.0	1.66	135.32	2,723.5	-51.6	14.6	-51.2	0.14	0.00	-4.68
2,750.0	1.56	137.30	2,748.5	-52.2	15.0	-51.7	0.46	-0.40	7.92
2,775.0	1.61	141.21	2,773.5	-52.7	15.5	-52.2	0.48	0.20	15.64
2,800.0	1.64	143.27	2,798.5	-53.2	15.9	-52.7	0.26	0.12	8.24
2,825.0	1.48	146.75	2,823.5	-53.8	16.3	-53.3	0.74	-0.64	13.92
2,850.0	1.53	146.37	2,848.5	-54.3	16.7	-53.8	0.20	0.20	-1.52
2,875.0	1.49	148.93	2,873.5	-54.9	17.0	-54.3	0.31	-0.16	10.24
2,900.0	1.45	147.15	2,898.4	-55.4	17.4	-54.9	0.24	-0.16	-7.12
2,925.0	1.49	150.36	2,923.4	-56.0	17.7	-55.4	0.37	0.16	12.84
2,950.0	1.65	151.76	2,948.4	-56.6	18.0	-56.0	0.66	0.64	5.60
2,975.0	1.60	147.64	2,973.4	-57.2	18.4	-56.6	0.51	-0.20	-16.48
3,000.0	1.50	153.07	2,998.4	-57.8	18.7	-57.2	0.71	-0.40	21.72
3,025.0	1.56	151.07	3,023.4	-58.4	19.0	-57.8	0.32	0.24	-8.00
3,050.0	1.65	154.23	3,048.4	-59.0	19.4	-58.4	0.50	0.36	12.64
3,075.0	1.53	158.76	3,073.4	-59.6	19.6	-59.0	0.69	-0.48	18.12
3,100.0	1.07	190.82	3,098.4	-60.2	19.7	-59.5	3.37	-1.84	128.24
3,125.0	1.04	218.55	3,123.4	-60.6	19.5	-59.9	2.03	-0.12	110.92
3,150.0	1.15	240.91	3,148.4	-60.9	19.2	-60.3	1.75	0.44	89.44
3,175.0	1.25	269.88	3,173.4	-61.0	18.7	-60.4	2.43	0.40	115.88
3,200.0	1.61	296.96	3,198.4	-60.8	18.1	-60.3	3.02	1.44	108.32
3,225.0	2.03	310.50	3,223.3	-60.4	17.4	-59.8	2.39	1.68	54.16
3,250.0	2.09	315.52	3,248.3	-59.8	16.8	-59.2	0.76	0.24	20.08
3,275.0	2.22	319.21	3,273.3	-59.1	18.2	-58.6	0.76	0.52	14.76
3,300.0	2.25	319.12	3,298.3	-58.4	15.5	-57.8	0.12	0.12	-0.36
3,325.0	2.30	320.07	3,323.3	-57.6	14.9	-57.1	0.25	0.20	3.80
3,350.0	2.04	323.70	3,348.2	-56.9	14.3	-56.4	1.18	-1.04	14.52
3,375.0	1.65	334.62	3,373.2	-56.2	13.9	-55.7	2.09	-1.56	43.68
3,400.0	1.39	348.52	3,398.2	-55.6	13.7	-55.1	1.80	-1.04	55.60



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 MD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
 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)
3,425.0	1.40	358.03	3,423.2	-55.0	13.6	-54.5	0.93	0.04	38.04
3,450.0	1.32	357.20	3,448.2	-54.4	13.6	-53.9	0.33	-0.32	-3.32
3,475.0	1.32	358.64	3,473.2	-53.8	13.5	-53.3	0.13	0.00	5.76
3,500.0	1.11	0.95	3,498.2	-53.3	13.5	-52.8	0.86	-0.84	9.24
3,525.0	1.12	358.84	3,523.2	-52.8	13.5	-52.3	0.17	0.04	-8.44
3,550.0	1.04	4.76	3,548.2	-52.3	13.6	-51.8	0.55	-0.32	23.68
3,575.0	1.15	0.52	3,573.2	-51.8	13.6	-51.4	0.55	0.44	-16.96
3,600.0	1.21	3.60	3,598.2	-51.3	13.6	-50.9	0.35	0.24	12.32
3,625.0	1.24	14.54	3,623.2	-50.8	13.7	-50.3	0.94	0.12	43.76
3,650.0	1.23	21.96	3,648.2	-50.3	13.8	-49.8	0.64	-0.04	29.68
3,675.0	1.40	28.32	3,673.2	-49.8	14.1	-49.3	0.90	0.68	25.44
3,700.0	1.45	30.67	3,698.2	-49.2	14.4	-48.7	0.31	0.20	9.40
3,725.0	1.56	28.34	3,723.1	-48.6	14.7	-48.2	0.50	0.44	-9.32
3,750.0	1.63	27.14	3,748.1	-48.0	15.0	-47.5	0.31	0.28	-4.80
3,775.0	1.61	26.79	3,773.1	-47.4	15.4	-46.9	0.09	-0.08	-1.40
3,800.0	1.61	23.60	3,798.1	-46.8	15.7	-46.2	0.36	0.00	-12.76
3,825.0	1.59	27.09	3,823.1	-46.1	16.0	-45.6	0.40	-0.08	13.96
3,850.0	1.60	22.28	3,848.1	-45.5	16.3	-45.0	0.54	0.04	-19.24
3,875.0	1.57	20.57	3,873.1	-44.9	16.5	-44.3	0.22	-0.12	-6.84
3,900.0	1.56	24.47	3,898.1	-44.2	16.8	-43.7	0.43	-0.04	15.60
3,925.0	1.54	22.97	3,923.1	-43.6	17.0	-43.1	0.18	-0.08	-6.00
3,950.0	1.57	23.23	3,948.1	-43.0	17.3	-42.4	0.12	0.12	1.04
3,975.0	1.58	22.48	3,973.1	-42.3	17.6	-41.8	0.09	0.04	-3.00
4,000.0	1.66	29.15	3,998.0	-41.7	17.9	-41.1	0.82	0.32	26.68
4,025.0	1.74	28.26	4,023.0	-41.1	18.2	-40.5	0.34	0.32	-3.56
4,050.0	1.81	26.91	4,048.0	-40.4	18.6	-39.8	0.33	0.28	-5.40
4,075.0	1.86	34.10	4,073.0	-39.7	19.0	-39.1	0.94	0.20	28.76
4,100.0	1.83	38.90	4,098.0	-39.0	19.5	-38.4	0.63	-0.12	19.20
4,125.0	1.90	50.29	4,123.0	-38.5	20.0	-37.8	1.51	0.28	45.56
4,150.0	2.11	58.81	4,148.0	-38.0	20.8	-37.3	1.46	0.84	34.08
4,175.0	2.31	65.16	4,172.9	-37.5	21.6	-36.8	1.26	0.80	25.40
4,200.0	2.63	71.19	4,197.9	-37.1	22.6	-36.4	1.65	1.28	24.12
4,225.0	2.76	72.78	4,222.9	-36.8	23.7	-36.0	0.60	0.52	6.36
4,250.0	2.79	74.19	4,247.9	-36.4	24.9	-35.6	0.30	0.12	5.64
4,275.0	2.64	74.83	4,272.8	-36.1	26.0	-35.3	0.61	-0.60	2.56
4,300.0	2.37	79.14	4,297.8	-35.8	27.1	-35.0	1.32	-1.08	17.24
4,325.0	1.95	89.42	4,322.8	-35.7	28.0	-34.9	2.28	-1.68	41.12
4,350.0	1.74	98.13	4,347.8	-35.8	28.8	-34.9	1.40	-0.84	34.84
4,375.0	1.75	102.73	4,372.8	-35.9	29.6	-35.0	0.56	0.04	18.40
4,400.0	1.77	104.47	4,397.8	-36.1	30.3	-35.1	0.23	0.08	6.96
4,425.0	2.00	109.91	4,422.7	-36.4	31.1	-35.4	1.16	0.92	21.76
4,450.0	2.25	113.01	4,447.7	-36.7	32.0	-35.7	1.10	1.00	12.40



Survey Report

Company: NORTHERN DELAWARE BASIN
 Project: LEA COUNTY, NM
 Site: BULLDOG
 Well: EIDER FED #304H
 Wellbore: OWB
 Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well EIDER FED #304H
 TVD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
 MD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
 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)
4,475.0	2.45	115.83	4,472.7	-37.1	32.9	-36.1	0.92	0.80	11.28
4,500.0	2.71	117.46	4,497.7	-37.6	33.9	-36.5	1.08	1.04	6.52
4,525.0	3.04	119.65	4,522.7	-38.2	35.0	-37.1	1.39	1.32	8.76
4,550.0	3.21	122.94	4,547.6	-38.9	36.2	-37.8	0.99	0.68	13.16
4,575.0	3.41	125.01	4,572.6	-39.7	37.4	-38.6	0.93	0.80	8.28
4,600.0	3.56	125.57	4,597.5	-40.6	38.6	-39.4	0.62	0.60	2.24
4,625.0	3.58	125.51	4,622.5	-41.5	39.9	-40.3	0.08	0.08	-0.24
4,650.0	3.44	126.20	4,647.4	-42.4	41.1	-41.1	0.58	-0.56	2.76
4,675.0	3.05	128.38	4,672.4	-43.3	42.2	-41.9	1.64	-1.56	8.72
4,700.0	2.63	131.65	4,697.4	-44.1	43.2	-42.7	1.80	-1.68	13.08
4,725.0	2.23	134.44	4,722.3	-44.8	44.0	-43.4	1.67	-1.60	11.16
4,750.0	2.11	135.39	4,747.3	-45.5	44.6	-44.0	0.50	-0.48	3.80
4,775.0	2.06	136.75	4,772.3	-46.1	45.3	-44.7	0.28	-0.20	5.44
4,800.0	2.12	136.09	4,797.3	-46.8	45.9	-45.3	0.26	0.24	-2.64
4,825.0	2.10	135.73	4,822.3	-47.4	46.5	-46.0	0.10	-0.08	-1.44
4,850.0	1.99	134.18	4,847.3	-48.1	47.2	-46.6	0.49	-0.44	-6.20
4,875.0	2.05	133.45	4,872.2	-48.7	47.8	-47.2	0.26	0.24	-2.92
4,900.0	2.12	132.29	4,897.2	-49.3	48.5	-47.8	0.33	0.28	-4.64
4,925.0	2.11	133.73	4,922.2	-49.9	49.1	-48.4	0.22	-0.04	5.76
4,950.0	2.16	131.31	4,947.2	-50.6	49.8	-49.0	0.41	0.20	-9.68
4,975.0	2.50	125.88	4,972.2	-51.2	50.6	-49.6	1.62	1.36	-21.72
5,000.0	2.91	122.79	4,997.1	-51.8	51.6	-50.2	1.74	1.64	-12.36
5,025.0	3.24	121.03	5,022.1	-52.6	52.7	-50.9	1.37	1.32	-7.04
5,050.0	3.46	117.33	5,047.1	-53.3	54.0	-51.6	1.23	0.88	-14.80
5,075.0	3.58	117.04	5,072.0	-54.0	55.4	-52.2	0.49	0.48	-1.16
5,100.0	3.59	117.62	5,097.0	-54.7	56.8	-52.9	0.15	0.04	2.32
5,125.0	3.61	117.70	5,121.9	-55.4	58.2	-53.6	0.08	0.08	0.32
5,150.0	3.68	117.07	5,146.9	-56.1	59.6	-54.3	0.32	0.28	-2.52
5,175.0	3.62	117.57	5,171.8	-56.9	61.0	-54.9	0.27	-0.24	2.00
5,200.0	3.64	116.82	5,196.8	-57.6	62.4	-55.6	0.21	0.08	-3.00
5,225.0	3.79	116.66	5,221.7	-58.3	63.8	-56.3	0.60	0.60	-0.64
5,250.0	3.73	116.54	5,246.7	-59.1	65.3	-57.0	0.24	-0.24	-0.48
5,275.0	3.76	117.93	5,271.6	-59.8	66.8	-57.7	0.38	0.12	5.56
5,300.0	3.61	117.22	5,296.6	-60.6	68.2	-58.4	0.63	-0.60	-2.84
5,325.0	3.68	116.02	5,321.5	-61.3	69.6	-59.1	0.41	0.28	-4.80
5,350.0	3.53	116.50	5,346.5	-62.0	71.0	-59.7	0.61	-0.60	1.92
5,375.0	3.63	117.18	5,371.4	-62.7	72.4	-60.4	0.43	0.40	2.72
5,400.0	3.58	115.91	5,396.4	-63.4	73.8	-61.0	0.38	-0.20	-5.08
5,425.0	3.60	116.10	5,421.3	-64.1	75.2	-61.7	0.09	0.08	0.76
5,450.0	3.67	117.62	5,446.3	-64.8	76.6	-62.3	0.48	0.28	6.08
5,475.0	3.74	116.42	5,471.2	-65.5	78.1	-63.0	0.42	0.28	-4.80
5,500.0	3.75	116.77	5,496.1	-66.2	79.5	-63.7	0.10	0.04	1.40



Survey Report

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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)
5,525.0	3.65	117.63	5,521.1	-67.0	81.0	-64.4	0.46	-0.40	3.44
5,550.0	3.68	116.45	5,546.0	-67.7	82.4	-65.1	0.32	0.12	-4.72
5,575.0	3.72	116.84	5,571.0	-68.4	83.8	-65.8	0.19	0.16	1.56
5,600.0	3.70	116.95	5,595.9	-69.2	85.3	-66.5	0.08	-0.08	0.44
5,625.0	3.68	117.21	5,620.9	-69.9	86.7	-67.1	0.10	-0.08	1.04
5,650.0	3.70	115.62	5,645.8	-70.6	88.1	-67.8	0.42	0.08	-6.36
5,675.0	3.45	117.60	5,670.8	-71.3	89.5	-68.5	1.12	-1.00	7.92
5,700.0	3.46	117.77	5,695.7	-72.0	90.9	-69.1	0.06	0.04	0.68
5,725.0	3.51	117.50	5,720.7	-72.7	92.2	-69.8	0.21	0.20	-1.08
5,750.0	3.44	117.39	5,745.6	-73.4	93.6	-70.4	0.28	-0.28	-0.44
5,775.0	3.60	118.17	5,770.6	-74.1	94.9	-71.1	0.67	0.64	3.12
5,800.0	3.72	117.69	5,795.6	-74.9	96.3	-71.8	0.50	0.48	-1.92
5,825.0	3.74	117.28	5,820.5	-75.6	97.8	-72.5	0.13	0.08	-1.64
5,850.0	3.74	117.66	5,845.4	-76.4	99.2	-73.2	0.10	0.00	1.52
5,875.0	3.60	117.22	5,870.4	-77.1	100.6	-73.9	0.57	-0.56	-1.76
5,900.0	3.67	117.33	5,895.3	-77.8	102.1	-74.6	0.28	0.28	0.44
5,925.0	3.68	118.27	5,920.3	-78.6	103.5	-75.3	0.24	0.04	3.76
5,950.0	3.63	116.44	5,945.2	-79.3	104.9	-76.0	0.51	-0.20	-7.32
5,975.0	3.67	118.59	5,970.2	-80.0	106.3	-76.7	0.57	0.16	8.60
6,000.0	3.59	117.64	5,995.1	-80.8	107.7	-77.4	0.40	-0.32	-3.80
6,025.0	3.46	119.16	6,020.1	-81.5	109.0	-78.1	0.64	-0.52	6.08
6,050.0	3.46	118.71	6,045.0	-82.3	110.4	-78.8	0.11	0.00	-1.80
6,075.0	3.44	119.41	6,070.0	-83.0	111.7	-79.5	0.19	-0.08	2.80
6,100.0	3.50	117.28	6,095.0	-83.7	113.0	-80.1	0.57	0.24	-8.52
6,125.0	3.58	118.77	6,119.9	-84.4	114.4	-80.8	0.49	0.32	5.96
6,150.0	3.54	118.65	6,144.9	-85.2	115.7	-81.5	0.16	-0.16	-0.48
6,175.0	3.60	118.08	6,169.8	-85.9	117.1	-82.2	0.28	0.24	-2.28
6,200.0	3.50	118.32	6,194.8	-86.6	118.5	-82.9	0.40	-0.40	0.96
6,225.0	3.54	118.13	6,219.7	-87.4	119.8	-83.6	0.17	0.16	-0.76
6,250.0	3.46	118.33	6,244.7	-88.1	121.2	-84.3	0.32	-0.32	0.80
6,275.0	3.55	117.67	6,269.6	-88.8	122.5	-84.9	0.39	0.36	-2.64
6,300.0	3.52	118.47	6,294.6	-89.5	123.9	-85.6	0.23	-0.12	3.20
6,325.0	3.58	118.99	6,319.5	-90.3	125.2	-86.3	0.27	0.24	2.08
6,350.0	3.63	118.68	6,344.5	-91.0	126.6	-87.0	0.21	0.20	-1.24
6,375.0	3.70	118.00	6,369.4	-91.8	128.0	-87.8	0.33	0.28	-2.72
6,400.0	3.69	116.61	6,394.4	-92.5	129.4	-88.5	0.36	-0.04	-5.56
6,425.0	3.63	117.68	6,419.3	-93.3	130.9	-89.1	0.36	-0.24	4.28
6,450.0	3.64	118.62	6,444.3	-94.0	132.3	-89.8	0.24	0.04	3.76
6,475.0	3.52	119.18	6,469.2	-94.8	133.6	-90.6	0.50	-0.48	2.24
6,500.0	3.47	120.25	6,494.2	-95.5	135.0	-91.3	0.33	-0.20	4.28
6,525.0	3.62	119.52	6,519.1	-96.3	136.3	-92.0	0.63	0.60	-2.92
6,550.0	3.59	118.80	6,544.1	-97.1	137.7	-92.7	0.22	-0.12	-2.88



Survey Report

Company: NORTHERN DELAWARE BASIN
 Project: LEA COUNTY, NM
 Site: BULLDOG
 Well: EIDER FED #304H
 Wellbore: OWB
 Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well EIDER FED #304H
 TVD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
 MD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
 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)
6,575.0	3.54	119.95	6,569.0	-97.8	139.0	-93.4	0.35	-0.20	4.60
6,600.0	3.54	118.75	6,594.0	-98.6	140.4	-94.2	0.30	0.00	-4.80
6,625.0	3.49	119.39	6,618.9	-99.3	141.7	-94.9	0.25	-0.20	2.56
6,650.0	3.63	119.57	6,643.9	-100.1	143.1	-95.6	0.56	0.56	0.72
6,675.0	3.71	114.33	6,668.8	-100.8	144.5	-96.3	1.38	0.32	-20.96
6,700.0	3.61	114.12	6,693.8	-101.5	145.9	-96.9	0.40	-0.40	-0.84
6,725.0	3.68	114.59	6,718.7	-102.1	147.4	-97.5	0.30	0.28	1.88
6,750.0	3.83	115.29	6,743.7	-102.8	148.9	-98.1	0.63	0.60	2.80
6,775.0	3.70	113.49	6,768.6	-103.5	150.4	-98.7	0.70	-0.52	-7.20
6,800.0	3.68	115.37	6,793.6	-104.2	151.8	-99.4	0.49	-0.08	7.52
6,825.0	3.61	114.22	6,818.5	-104.8	153.3	-100.0	0.40	-0.28	-4.60
6,850.0	3.68	115.23	6,843.5	-105.5	154.7	-100.6	0.38	0.28	4.04
6,875.0	3.60	115.86	6,868.4	-106.2	156.2	-101.2	0.36	-0.32	2.52
6,900.0	3.53	116.84	6,893.4	-106.9	157.5	-101.9	0.37	-0.28	3.92
6,925.0	3.53	116.71	6,918.3	-107.6	158.9	-102.5	0.03	0.00	-0.52
6,950.0	3.50	116.77	6,943.3	-108.2	160.3	-103.2	0.12	-0.12	0.24
6,975.0	3.53	118.15	6,968.2	-108.9	161.6	-103.9	0.36	0.12	5.52
7,000.0	3.54	119.23	6,993.2	-109.7	163.0	-104.6	0.27	0.04	4.32
7,025.0	3.43	120.90	7,018.1	-110.4	164.3	-105.3	0.60	-0.44	6.68
7,050.0	3.35	120.82	7,043.1	-111.2	165.6	-106.0	0.32	-0.32	-0.32
7,075.0	3.34	121.24	7,068.1	-112.0	166.8	-106.7	0.11	-0.04	1.68
7,100.0	3.30	122.10	7,093.0	-112.7	168.1	-107.4	0.26	-0.16	3.44
7,125.0	3.21	122.59	7,118.0	-113.5	169.3	-108.1	0.38	-0.36	1.96
7,150.0	3.17	121.30	7,142.9	-114.2	170.4	-108.8	0.33	-0.16	-5.16
7,175.0	3.25	122.72	7,167.9	-115.0	171.6	-109.5	0.45	0.32	5.68
7,200.0	3.42	122.49	7,192.9	-115.7	172.9	-110.3	0.68	0.68	-0.92
7,225.0	3.38	121.58	7,217.8	-116.5	174.1	-111.0	0.27	-0.16	-3.64
7,250.0	3.25	121.75	7,242.8	-117.3	175.3	-111.8	0.52	-0.52	0.68
7,275.0	3.36	122.31	7,267.7	-118.0	176.6	-112.5	0.46	0.44	2.24
7,300.0	3.49	121.60	7,292.7	-118.8	177.8	-113.2	0.55	0.52	-2.84
7,325.0	3.48	122.46	7,317.6	-119.6	179.1	-114.0	0.21	-0.04	3.44
7,350.0	3.55	122.84	7,342.6	-120.5	180.4	-114.8	0.30	0.28	1.52
7,375.0	3.46	122.56	7,367.5	-121.3	181.7	-115.6	0.37	-0.36	-1.12
7,400.0	3.49	121.22	7,392.5	-122.1	183.0	-116.3	0.35	0.12	-5.36
7,425.0	3.46	123.25	7,417.4	-122.9	184.3	-117.1	0.51	-0.12	8.12
7,450.0	3.47	123.49	7,442.4	-123.7	185.5	-117.9	0.07	0.04	0.96
7,475.0	3.38	122.95	7,467.4	-124.6	186.8	-118.7	0.38	-0.36	-2.16
7,500.0	3.27	124.92	7,492.3	-125.4	188.0	-119.4	0.63	-0.44	7.88
7,525.0	3.34	124.27	7,517.3	-126.2	189.2	-120.2	0.32	0.28	-2.60
7,550.0	3.10	126.50	7,542.2	-127.0	190.3	-121.0	1.08	-0.96	8.92
7,575.0	3.15	125.95	7,567.2	-127.8	191.4	-121.8	0.23	0.20	-2.20
7,600.0	2.89	129.30	7,592.2	-128.6	192.5	-122.5	1.26	-1.04	13.40



Survey Report

Company: NORTHERN DELAWARE BASIN
 Project: LEA COUNTY, NM
 Site: BULLDOG
 Well: EIDER FED #304H
 Wellbore: OWB
 Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well EIDER FED #304H
 TVD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
 MD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
 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)
7,625.0	2.79	131.65	7,617.1	-129.4	193.4	-123.3	0.61	-0.40	9.40
7,650.0	2.89	129.26	7,642.1	-130.2	194.3	-124.1	0.62	0.40	-9.56
7,675.0	2.91	129.99	7,667.1	-131.0	195.3	-124.9	0.17	0.08	2.92
7,700.0	3.17	129.47	7,692.0	-131.9	196.3	-125.7	1.05	1.04	-2.08
7,725.0	3.48	128.06	7,717.0	-132.8	197.5	-126.5	1.28	1.24	-5.64
7,750.0	3.58	126.80	7,741.9	-133.7	198.7	-127.4	0.51	0.40	-5.04
7,775.0	3.43	127.41	7,766.9	-134.6	199.9	-128.3	0.62	-0.60	2.44
7,800.0	3.50	128.91	7,791.9	-135.6	201.1	-129.2	0.46	0.28	6.00
7,825.0	3.45	130.14	7,816.8	-136.5	202.3	-130.2	0.36	-0.20	4.92
7,850.0	3.46	131.10	7,841.8	-137.5	203.4	-131.1	0.23	0.04	3.84
7,875.0	3.51	130.42	7,866.7	-138.5	204.6	-132.1	0.26	0.20	-2.72
7,900.0	3.46	129.15	7,891.7	-139.5	205.7	-133.0	0.37	-0.20	-5.08
7,925.0	3.48	129.62	7,916.6	-140.4	206.9	-133.9	0.14	0.08	1.88
7,950.0	3.48	128.63	7,941.6	-141.4	208.1	-134.8	0.24	0.00	-3.96
7,975.0	3.43	127.82	7,966.5	-142.3	209.3	-135.7	0.28	-0.20	-3.24
8,000.0	3.49	128.45	7,991.5	-143.3	210.4	-136.6	0.28	0.24	2.52
8,025.0	3.40	127.78	8,016.4	-144.2	211.6	-137.5	0.39	-0.36	-2.68
8,050.0	3.32	128.26	8,041.4	-145.1	212.8	-138.4	0.34	-0.32	1.92
8,075.0	3.22	129.14	8,066.4	-146.0	213.9	-139.2	0.45	-0.40	3.52
8,100.0	3.24	130.02	8,091.3	-146.9	215.0	-140.1	0.21	0.08	3.52
8,125.0	3.31	130.88	8,116.3	-147.8	216.1	-141.0	0.34	0.28	3.44
8,150.0	3.25	131.14	8,141.2	-148.7	217.1	-141.9	0.25	-0.24	1.04
8,175.0	3.24	132.57	8,166.2	-149.7	218.2	-142.8	0.33	-0.04	5.72
8,200.0	3.29	132.59	8,191.2	-150.6	219.2	-143.7	0.20	0.20	0.08
8,225.0	3.24	132.71	8,216.1	-151.6	220.3	-144.7	0.20	-0.20	0.48
8,250.0	3.15	133.16	8,241.1	-152.6	221.3	-145.6	0.37	-0.36	1.80
8,275.0	3.16	130.90	8,266.0	-153.5	222.3	-146.5	0.50	0.04	-9.04
8,300.0	3.21	133.28	8,291.0	-154.4	223.4	-147.4	0.57	0.20	9.52
8,325.0	3.26	135.43	8,316.0	-155.4	224.4	-148.3	0.52	0.20	8.60
8,350.0	3.26	135.40	8,340.9	-156.4	225.4	-149.3	0.01	0.00	-0.12
8,375.0	3.26	136.03	8,365.9	-157.4	226.4	-150.3	0.14	0.00	2.52
8,400.0	3.19	136.15	8,390.8	-158.4	227.3	-151.3	0.28	-0.28	0.48
8,425.0	3.07	136.76	8,415.8	-159.4	228.3	-152.2	0.50	-0.48	2.44
8,450.0	3.12	139.62	8,440.8	-160.4	229.2	-153.2	0.65	0.20	11.44
8,475.0	3.01	140.38	8,465.7	-161.5	230.0	-154.2	0.47	-0.44	3.04
8,500.0	3.04	139.64	8,490.7	-162.5	230.9	-155.2	0.20	0.12	-2.96
8,525.0	3.09	138.44	8,515.7	-163.5	231.8	-156.2	0.33	0.20	-4.80
8,550.0	3.10	137.26	8,540.6	-164.5	232.7	-157.1	0.26	0.04	-4.72
8,575.0	2.93	137.73	8,565.6	-165.5	233.6	-158.1	0.69	-0.68	1.88
8,600.0	2.77	138.24	8,590.6	-166.4	234.4	-159.0	0.65	-0.64	2.04
8,625.0	2.86	139.21	8,615.5	-167.3	235.2	-159.9	0.41	0.36	3.88
8,650.0	2.92	138.42	8,640.5	-168.2	236.0	-160.8	0.29	0.24	-3.16



Survey Report

Company: NORTHERN DELAWARE BASIN
 Project: LEA COUNTY, NM
 Site: BULLDOG
 Well: EIDER FED #304H
 Wellbore: OWB
 Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well EIDER FED #304H
 TVD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
 MD Reference: RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)
 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)
8,675.0	2.88	141.13	8,665.5	-169.2	236.8	-161.7	0.57	-0.16	10.84
8,700.0	2.67	141.52	8,690.4	-170.2	237.6	-162.7	0.84	-0.84	1.56
8,725.0	2.69	145.76	8,715.4	-171.1	238.3	-163.6	0.80	0.08	16.96
8,750.0	2.75	145.01	8,740.4	-172.1	239.0	-164.5	0.28	0.24	-3.00
8,775.0	2.59	140.96	8,765.4	-173.0	239.7	-165.4	0.99	-0.64	-16.20
8,800.0	1.89	133.48	8,790.3	-173.7	240.3	-166.1	3.03	-2.80	-29.92
8,825.0	2.54	144.76	8,815.3	-174.5	240.9	-166.9	3.12	2.60	45.12
8,850.0	2.35	143.89	8,840.3	-175.3	241.6	-167.7	0.77	-0.76	-3.48
8,875.0	2.24	149.12	8,865.3	-176.2	242.1	-168.5	0.95	-0.44	20.92
8,900.0	2.43	150.81	8,890.3	-177.0	242.6	-169.4	0.81	0.76	6.76
8,925.0	2.34	148.07	8,915.2	-177.9	243.2	-170.3	0.58	-0.36	-10.96
8,950.0	2.24	156.19	8,940.2	-178.8	243.6	-171.1	1.36	-0.40	32.48
8,980.0	1.96	167.54	8,988.2	-180.5	244.2	-172.8	1.04	-0.58	23.65
9,088.0	1.66	148.32	9,078.1	-183.1	245.2	-175.4	0.75	-0.33	-21.36
9,120.0	3.31	43.40	9,110.1	-182.8	246.1	-175.1	12.71	5.16	-327.88
9,182.0	12.96	23.47	9,171.4	-175.1	250.1	-167.2	15.99	15.56	-32.15
9,229.0	19.24	16.17	9,216.6	-162.8	254.3	-154.8	14.01	13.36	-15.53
9,276.0	24.98	13.34	9,260.1	-145.7	258.8	-137.6	12.42	12.21	-6.02
9,323.0	31.46	6.63	9,301.5	-123.9	262.5	-115.6	15.33	13.79	-14.28
9,370.0	35.59	2.56	9,340.7	-98.0	264.5	-89.7	10.00	8.79	-8.66
9,417.0	40.15	0.82	9,377.8	-69.2	265.4	-60.9	9.96	9.70	-3.70
9,463.0	42.99	0.89	9,412.2	-38.6	265.8	-30.3	6.17	6.17	0.15
9,510.0	47.84	3.42	9,445.2	-5.2	267.1	3.1	11.01	10.32	5.38
9,557.0	53.26	2.52	9,475.0	31.0	269.0	39.4	11.63	11.53	-1.91
9,604.0	58.83	359.86	9,501.3	70.0	269.8	78.3	12.75	11.85	-5.66
9,650.0	62.56	358.78	9,523.8	110.1	269.3	118.4	8.36	8.11	-2.35
9,682.0	66.15	358.09	9,537.6	138.9	268.5	147.2	11.39	11.22	-2.16
9,713.0	73.00	357.68	9,548.4	167.9	267.4	176.2	22.13	22.10	-1.32
9,745.0	77.21	357.33	9,556.7	198.8	266.1	207.0	13.20	13.16	-1.09
9,776.0	79.78	357.13	9,562.8	229.1	264.6	237.3	8.31	8.29	-0.65
9,807.0	82.45	357.24	9,567.6	259.7	263.1	267.8	8.62	8.61	0.35
9,868.0	85.54	357.91	9,574.0	320.3	260.5	328.3	5.18	5.07	1.10
9,962.0	89.47	358.81	9,578.1	414.2	257.8	422.0	4.29	4.18	0.96
10,056.0	88.43	358.32	9,579.8	508.1	255.5	515.9	1.22	-1.11	-0.52
10,150.0	89.66	357.69	9,581.4	602.1	252.2	609.6	1.47	1.31	-0.67
10,243.0	88.35	359.16	9,583.0	695.0	249.7	702.5	2.12	-1.41	1.58
10,337.0	89.33	359.10	9,584.9	789.0	248.2	796.3	1.04	1.04	-0.06
10,431.0	90.62	358.93	9,584.9	883.0	246.6	890.2	1.38	1.37	-0.18
10,525.0	89.38	359.45	9,584.9	977.0	245.3	984.1	1.43	-1.32	0.55
10,618.0	90.64	0.60	9,584.9	1,070.0	245.3	1,077.1	1.83	1.35	1.24
10,711.0	88.57	0.58	9,585.6	1,162.9	246.3	1,170.1	2.23	-2.23	-0.02
10,805.0	89.75	0.17	9,586.9	1,256.9	246.9	1,264.0	1.33	1.26	-0.44



Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM

Site: BULLDOG

Well: EIDER FED #304H

Wellbore: OWB

Design: ACTUAL WELLPATH

Local Co-ordinate Reference:

TVD Reference:

MD Reference:

North Reference:

Survey Calculation Method:

Database:

Well EIDER FED #304H

RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)

RKB=3525.7+27 @ 3552.7usft (SCANDRILL FREEDOM)

Grid

Minimum Curvature

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)
10,899.0	91.23	0.75	9,586.1	1,350.9	247.7	1,358.0	1.69	1.57	0.62
10,993.0	87.37	0.08	9,587.3	1,444.9	248.3	1,451.9	4.17	-4.11	-0.71
11,087.0	88.24	0.24	9,590.9	1,538.8	248.6	1,545.8	0.94	0.93	0.17
11,180.0	89.55	0.66	9,592.7	1,631.8	249.3	1,638.8	1.48	1.41	0.45
11,273.0	91.12	1.20	9,592.1	1,724.8	250.8	1,731.8	1.79	1.69	0.58
11,367.0	89.72	0.23	9,591.4	1,818.8	252.0	1,825.7	1.81	-1.49	-1.03
11,461.0	90.62	0.14	9,591.2	1,912.8	252.3	1,919.7	0.96	0.96	-0.10
11,554.0	92.02	0.30	9,589.0	2,005.7	252.7	2,012.6	1.52	1.51	0.17
11,647.0	89.75	359.75	9,587.6	2,098.7	252.7	2,105.6	2.51	-2.44	-0.59
11,741.0	90.84	359.77	9,587.1	2,192.7	252.3	2,199.5	1.16	1.16	0.02
11,835.0	92.30	359.95	9,584.5	2,286.7	252.1	2,293.4	1.56	1.55	0.19
11,928.0	91.40	359.85	9,581.5	2,379.6	251.9	2,386.3	0.97	-0.97	-0.11
12,021.0	89.41	359.60	9,580.9	2,472.6	251.5	2,479.3	2.16	-2.14	-0.27
12,114.0	90.28	359.06	9,581.1	2,565.6	250.4	2,572.2	1.10	0.94	-0.58
12,208.0	89.33	357.37	9,581.4	2,659.6	247.5	2,666.0	2.06	-1.01	-1.80
12,302.0	88.52	358.43	9,583.2	2,753.5	244.0	2,759.8	1.42	-0.86	1.13
12,396.0	87.62	0.47	9,586.4	2,847.4	243.1	2,853.8	2.37	-0.96	2.17
12,489.0	88.21	1.01	9,589.8	2,940.3	244.3	2,946.5	0.86	0.63	0.58
12,583.0	86.70	0.32	9,593.9	3,034.2	245.4	3,040.4	1.77	-1.61	-0.73
12,675.0	88.01	0.70	9,598.2	3,126.1	246.2	3,132.3	1.48	1.42	0.41
12,768.0	88.74	0.81	9,600.8	3,219.1	247.4	3,225.2	0.79	0.78	0.12
12,862.0	88.85	0.82	9,602.8	3,313.1	248.8	3,319.2	0.12	0.12	0.01
12,956.0	89.13	1.11	9,604.4	3,407.0	250.4	3,413.2	0.43	0.30	0.31
13,050.0	88.26	0.14	9,606.6	3,501.0	251.4	3,507.1	1.39	-0.93	-1.03
13,143.0	90.22	358.66	9,607.8	3,594.0	250.4	3,600.0	2.64	2.11	-1.59
13,237.0	91.18	358.76	9,606.7	3,688.0	248.3	3,693.9	1.03	1.02	0.11
13,329.0	89.72	357.84	9,606.0	3,779.9	245.6	3,785.7	1.88	-1.59	-1.00
13,423.0	88.18	358.49	9,607.7	3,873.8	242.6	3,879.5	1.78	-1.64	0.69
13,517.0	88.80	358.52	9,610.2	3,967.8	240.1	3,973.3	0.66	0.66	0.03
13,611.0	88.35	359.74	9,612.5	4,061.7	238.7	4,067.2	1.38	-0.48	1.30
13,704.0	89.27	0.15	9,614.4	4,154.7	238.6	4,160.1	1.08	0.99	0.44
13,798.0	90.31	0.64	9,614.8	4,248.7	239.2	4,254.1	1.22	1.11	0.52
13,897.0	89.55	0.34	9,614.9	4,347.7	240.1	4,353.1	0.83	-0.77	-0.30
13,991.0	88.38	0.39	9,616.6	4,441.7	240.7	4,447.0	1.25	-1.24	0.05
14,084.0	88.68	0.50	9,619.0	4,534.7	241.4	4,540.0	0.34	0.32	0.12
14,177.0	88.46	0.86	9,621.3	4,627.6	242.5	4,632.9	0.45	-0.24	0.39
14,275.0	88.40	0.96	9,624.0	4,725.6	244.1	4,730.9	0.12	-0.06	0.10
14,368.0	88.38	1.13	9,626.6	4,818.5	245.8	4,823.8	0.18	-0.02	0.18
14,462.0	89.47	0.03	9,628.4	4,912.5	246.7	4,917.8	1.65	1.16	-1.17
14,556.0	89.64	359.93	9,629.1	5,006.5	246.7	5,011.7	0.21	0.18	-0.11
14,649.0	89.47	0.13	9,629.8	5,099.5	246.7	5,104.7	0.28	-0.18	0.22
14,742.0	88.99	0.27	9,631.1	5,192.5	247.1	5,197.7	0.54	-0.52	0.15



Survey Report

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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)
14,837.0	89.47	0.37	9,632.3	5,287.5	247.6	5,292.6	0.52	0.51	0.11
14,931.0	89.89	0.25	9,632.9	5,381.5	248.1	5,386.6	0.46	0.45	-0.13
15,024.0	87.20	359.51	9,635.2	5,474.4	247.9	5,479.5	3.00	-2.89	-0.80
15,117.0	87.39	359.62	9,639.6	5,567.3	247.2	5,572.3	0.24	0.20	0.12
15,211.0	88.32	359.80	9,643.1	5,661.2	248.7	5,666.2	1.01	0.99	0.19
15,304.0	86.13	358.97	9,647.6	5,754.1	245.7	5,759.0	2.52	-2.35	-0.89
15,397.0	86.36	359.29	9,653.7	5,846.9	244.3	5,851.7	0.42	0.25	0.34
15,491.0	85.46	359.40	9,660.4	5,940.7	243.2	5,945.4	0.96	-0.96	0.12
15,584.0	85.32	359.56	9,667.9	6,033.4	242.4	6,038.0	0.23	-0.15	0.17
15,678.0	86.81	0.37	9,674.3	6,127.1	242.3	6,131.7	1.80	1.59	0.86
15,771.0	87.14	0.52	9,679.3	6,220.0	243.1	6,224.6	0.39	0.35	0.16
15,865.0	90.50	0.81	9,681.2	6,314.0	244.2	6,318.5	3.59	3.57	0.31
15,959.0	93.70	0.58	9,677.7	6,407.9	245.3	6,412.4	3.41	3.40	-0.24
16,052.0	95.16	358.68	9,670.6	6,500.6	244.7	6,505.1	2.57	1.57	-2.04
16,146.0	96.68	358.63	9,660.9	6,594.1	242.5	6,598.4	1.62	1.62	-0.05
16,240.0	94.99	357.51	9,651.3	6,687.5	239.4	6,691.7	2.15	-1.80	-1.19
16,333.0	95.16	357.61	9,643.1	6,780.1	235.4	6,784.1	0.21	0.18	0.11
16,427.0	95.61	359.08	9,634.3	6,873.6	232.7	6,877.5	1.63	0.48	1.56
16,520.0	96.57	359.33	9,624.4	6,966.1	231.4	6,969.9	1.07	1.03	0.27
16,614.0	96.37	358.60	9,613.8	7,059.5	229.7	7,063.2	0.80	-0.21	-0.78
16,707.0	96.99	358.87	9,603.0	7,151.8	227.7	7,155.4	0.73	0.67	0.29
16,800.0	97.40	359.23	9,591.3	7,244.1	226.2	7,247.6	0.58	0.44	0.39
16,893.0	97.78	359.28	9,579.1	7,336.2	225.0	7,339.7	0.41	0.41	0.05
16,986.0	97.70	359.52	9,566.5	7,428.4	224.0	7,431.8	0.27	-0.09	0.26
17,046.0	97.70	359.52	9,558.5	7,487.9	223.5	7,491.2	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____