

NORTHERN DELAWARE BASIN

LEA COUNTY, NM

BULLDOG

FEZ FED COM #604H

OWB

HOBBS OCD

Design: ACTUAL WELLPATH

JAN 09 2020

RECEIVED

Standard Survey Report

06 May, 2019

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well FEZ FED COM #604H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Site:	BULLDOG	MD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Well:	FEZ FED COM #604H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	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	FEZ FED COM #604H					
Well Position	+N/-S	0.0 usft	Northing:	415,337.00 usft	Latitude:	32° 8' 17.812 N
	+E/-W	0.0 usft	Easting:	795,367.60 usft	Longitude:	103° 22' 44.770 W
Position Uncertainty		3.0 usft	Wellhead Elevation:	usft	Ground Level:	3,262.9 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM2015	2/28/2018	6.81	59.99	47,822.98386101

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	359.57	

Survey Program	Date 4/30/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	11,398.0	GYRO (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
11,431.0	22,434.0	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	0.50	151.48	100.0	-0.4	0.2	-0.4	0.50	0.50	0.00	
125.0	0.66	143.09	125.0	-0.6	0.3	-0.6	0.72	0.64	-33.56	
150.0	0.80	139.37	150.0	-0.8	0.5	-0.8	0.59	0.56	-14.88	
175.0	0.96	154.93	175.0	-1.2	0.7	-1.2	1.14	0.64	62.24	
200.0	0.84	133.57	200.0	-1.5	1.0	-1.5	1.42	-0.48	-85.44	
225.0	0.84	136.88	225.0	-1.7	1.2	-1.7	0.19	0.00	13.24	
250.0	0.92	139.09	250.0	-2.0	1.5	-2.0	0.35	0.32	8.84	
275.0	0.83	146.63	275.0	-2.3	1.7	-2.3	0.58	-0.36	30.16	
300.0	0.85	133.66	300.0	-2.6	2.0	-2.6	0.76	0.08	-51.88	

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Well:	FEZ FED COM #604H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	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)
325.0	0.91	135.35	325.0	-2.9	2.2	-2.9	0.26	0.24	6.76
350.0	0.90	130.54	350.0	-3.1	2.5	-3.2	0.31	-0.04	-19.24
375.0	0.91	132.86	375.0	-3.4	2.8	-3.4	0.15	0.04	9.28
400.0	0.94	137.24	400.0	-3.7	3.1	-3.7	0.31	0.12	17.52
425.0	0.95	131.90	425.0	-4.0	3.4	-4.0	0.35	0.04	-21.36
450.0	0.88	130.79	450.0	-4.2	3.7	-4.3	0.29	-0.28	-4.44
475.0	0.80	124.73	475.0	-4.5	4.0	-4.5	0.48	-0.32	-24.24
500.0	0.92	126.02	500.0	-4.7	4.3	-4.7	0.49	0.48	5.16
525.0	0.85	127.33	525.0	-4.9	4.6	-5.0	0.29	-0.28	5.24
550.0	0.85	124.77	549.9	-5.1	4.9	-5.2	0.15	0.00	-10.24
575.0	0.74	119.46	574.9	-5.3	5.2	-5.4	0.53	-0.44	-21.24
600.0	0.64	120.45	599.9	-5.5	5.4	-5.5	0.40	-0.40	3.96
625.0	0.66	117.02	624.9	-5.6	5.7	-5.7	0.17	0.08	-13.72
650.0	0.70	115.84	649.9	-5.7	6.0	-5.8	0.17	0.16	-4.72
675.0	0.60	108.40	674.9	-5.8	6.2	-5.9	0.52	-0.40	-29.76
700.0	0.59	101.27	699.9	-5.9	6.5	-6.0	0.30	-0.04	-28.52
725.0	0.47	90.03	724.9	-5.9	6.7	-6.0	0.63	-0.48	-44.96
750.0	0.39	81.84	749.9	-5.9	6.9	-6.0	0.40	-0.32	-32.76
775.0	0.32	64.90	774.9	-5.9	7.0	-5.9	0.50	-0.28	-67.76
800.0	0.25	60.19	799.9	-5.8	7.1	-5.9	0.30	-0.28	-18.84
825.0	0.20	41.64	824.9	-5.8	7.2	-5.8	0.35	-0.20	-74.20
850.0	0.26	22.09	849.9	-5.7	7.3	-5.7	0.39	0.24	-78.20
875.0	0.38	19.82	874.9	-5.6	7.3	-5.6	0.48	0.48	-9.08
900.0	0.33	20.74	899.9	-5.4	7.4	-5.5	0.20	-0.20	3.68
925.0	0.29	17.91	924.9	-5.3	7.4	-5.3	0.17	-0.16	-11.32
950.0	0.25	18.52	949.9	-5.2	7.5	-5.2	0.16	-0.16	2.44
975.0	0.31	16.53	974.9	-5.1	7.5	-5.1	0.24	0.24	-7.96
1,000.0	0.26	9.87	999.9	-4.9	7.5	-5.0	0.24	-0.20	-26.64
1,025.0	0.17	354.99	1,024.9	-4.8	7.5	-4.9	0.42	-0.36	-59.52
1,050.0	0.17	10.15	1,049.9	-4.8	7.5	-4.8	0.18	0.00	60.64
1,075.0	0.11	16.48	1,074.9	-4.7	7.5	-4.8	0.25	-0.24	25.32
1,100.0	0.10	306.09	1,099.9	-4.7	7.5	-4.7	0.49	-0.04	-281.56
1,125.0	0.14	256.75	1,124.9	-4.7	7.5	-4.7	0.43	0.16	-197.36
1,150.0	0.11	227.92	1,149.9	-4.7	7.4	-4.7	0.27	-0.12	-115.32
1,175.0	0.11	234.25	1,174.9	-4.7	7.4	-4.8	0.05	0.00	25.32
1,200.0	0.24	238.06	1,199.9	-4.8	7.3	-4.8	0.52	0.52	15.24
1,225.0	0.31	269.55	1,224.9	-4.8	7.2	-4.8	0.65	0.28	125.96
1,250.0	0.21	255.82	1,249.9	-4.8	7.1	-4.9	0.47	-0.40	-54.92
1,275.0	0.25	260.02	1,274.9	-4.8	7.0	-4.9	0.17	0.16	16.80
1,300.0	0.28	247.80	1,299.9	-4.9	6.9	-4.9	0.26	0.12	-48.88
1,325.0	0.22	245.08	1,324.9	-4.9	6.8	-4.9	0.24	-0.24	-10.88
1,350.0	0.22	255.26	1,349.9	-4.9	6.7	-5.0	0.16	0.00	40.72
1,375.0	0.18	260.29	1,374.9	-4.9	6.6	-5.0	0.17	-0.16	20.12

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Wellbore: OWB
Design: ACTUAL WELLPATH

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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)
1,400.0	0.20	233.30	1,399.9	-5.0	6.6	-5.0	0.36	0.08	-107.96
1,425.0	0.25	243.35	1,424.9	-5.0	6.5	-5.1	0.25	0.20	40.20
1,450.0	0.29	232.14	1,449.9	-5.1	6.4	-5.1	0.26	0.16	-44.84
1,475.0	0.48	208.57	1,474.9	-5.2	6.3	-5.3	0.97	0.76	-94.28
1,500.0	0.93	182.84	1,499.9	-5.5	6.2	-5.6	2.16	1.80	-102.92
1,525.0	1.53	184.46	1,524.9	-6.1	6.2	-6.1	2.40	2.40	6.48
1,550.0	2.11	182.06	1,549.9	-6.8	6.1	-6.9	2.34	2.32	-9.60
1,575.0	2.99	178.01	1,574.9	-8.0	6.1	-8.0	3.59	3.52	-16.20
1,600.0	3.66	178.81	1,599.8	-9.4	6.2	-9.5	2.69	2.68	3.20
1,625.0	4.17	177.97	1,624.8	-11.1	6.2	-11.2	2.05	2.04	-3.36
1,650.0	4.32	177.18	1,649.7	-13.0	6.3	-13.0	0.64	0.60	-3.16
1,675.0	4.28	177.59	1,674.6	-14.8	6.4	-14.9	0.20	-0.16	1.64
1,700.0	4.46	177.26	1,699.6	-16.7	6.5	-16.8	0.73	0.72	-1.32
1,725.0	4.41	177.61	1,724.5	-18.7	6.6	-18.7	0.23	-0.20	1.40
1,750.0	4.35	177.16	1,749.4	-20.6	6.7	-20.6	0.28	-0.24	-1.80
1,775.0	4.37	175.51	1,774.4	-22.5	6.8	-22.5	0.51	0.08	-6.60
1,800.0	4.31	175.52	1,799.3	-24.4	6.9	-24.4	0.24	-0.24	0.04
1,825.0	4.18	173.72	1,824.2	-26.2	7.1	-26.3	0.74	-0.52	-7.20
1,850.0	4.24	173.47	1,849.1	-28.0	7.3	-28.1	0.25	0.24	-1.00
1,875.0	4.14	173.13	1,874.1	-29.8	7.5	-29.9	0.41	-0.40	-1.36
1,900.0	4.05	172.88	1,899.0	-31.6	7.7	-31.7	0.37	-0.36	-1.00
1,925.0	4.14	172.57	1,923.9	-33.4	8.0	-33.4	0.37	0.36	-1.24
1,950.0	4.17	171.95	1,948.9	-35.2	8.2	-35.2	0.22	0.12	-2.48
1,975.0	4.15	172.14	1,973.8	-37.0	8.5	-37.0	0.10	-0.08	0.76
2,000.0	4.09	172.42	1,998.8	-38.8	8.7	-38.8	0.25	-0.24	1.12
2,025.0	4.11	172.34	2,023.7	-40.5	8.9	-40.6	0.08	0.08	-0.32
2,050.0	4.21	172.84	2,048.6	-42.3	9.2	-42.4	0.43	0.40	2.00
2,075.0	4.19	173.94	2,073.6	-44.1	9.4	-44.2	0.33	-0.08	4.40
2,100.0	4.07	175.88	2,098.5	-45.9	9.5	-46.0	0.74	-0.48	7.76
2,125.0	3.90	178.33	2,123.4	-47.7	9.6	-47.7	0.96	-0.68	9.80
2,150.0	3.94	178.55	2,148.4	-49.4	9.7	-49.5	0.17	0.16	0.88
2,175.0	3.93	178.70	2,173.3	-51.1	9.7	-51.2	0.06	-0.04	0.60
2,200.0	3.87	179.67	2,198.3	-52.8	9.7	-52.9	0.36	-0.24	3.88
2,225.0	3.86	179.24	2,223.2	-54.5	9.7	-54.6	0.12	-0.04	-1.72
2,250.0	3.85	179.24	2,248.1	-56.2	9.8	-56.2	0.04	-0.04	0.00
2,275.0	3.79	178.54	2,273.1	-57.8	9.8	-57.9	0.30	-0.24	-2.80
2,300.0	3.65	176.61	2,298.0	-59.4	9.9	-59.5	0.75	-0.56	-7.72
2,325.0	3.74	176.50	2,323.0	-61.1	10.0	-61.1	0.36	0.36	-0.44
2,350.0	3.58	174.91	2,347.9	-62.6	10.1	-62.7	0.76	-0.64	-6.36
2,375.0	3.56	176.96	2,372.9	-64.2	10.2	-64.3	0.52	-0.08	8.20
2,400.0	3.66	175.28	2,397.8	-65.8	10.3	-65.8	0.58	0.40	-6.72
2,425.0	3.72	174.79	2,422.8	-67.4	10.4	-67.4	0.27	0.24	-1.96
2,450.0	3.71	175.94	2,447.7	-69.0	10.6	-69.1	0.30	-0.04	4.60

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Wellbore: OWB
Design: ACTUAL WELLPATH

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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)
2,475.0	3.60	174.85	2,472.7	-70.6	10.7	-70.7	0.52	-0.44	-4.36
2,500.0	3.65	175.65	2,497.6	-72.1	10.8	-72.2	0.28	0.20	3.20
2,525.0	3.68	175.71	2,522.6	-73.7	11.0	-73.8	0.12	0.12	0.24
2,550.0	3.71	175.78	2,547.5	-75.3	11.1	-75.4	0.12	0.12	0.28
2,575.0	3.69	175.10	2,572.5	-77.0	11.2	-77.0	0.19	-0.08	-2.72
2,600.0	3.63	174.60	2,597.4	-78.5	11.3	-78.6	0.27	-0.24	-2.00
2,625.0	3.66	174.05	2,622.4	-80.1	11.5	-80.2	0.18	0.12	-2.20
2,650.0	3.62	173.99	2,647.3	-81.7	11.7	-81.8	0.16	-0.16	-0.24
2,675.0	3.64	173.24	2,672.3	-83.3	11.8	-83.4	0.21	0.08	-3.00
2,700.0	3.60	173.54	2,697.2	-84.8	12.0	-84.9	0.18	-0.16	1.20
2,725.0	3.62	172.90	2,722.2	-86.4	12.2	-86.5	0.18	0.08	-2.56
2,750.0	3.54	174.30	2,747.1	-88.0	12.4	-88.1	0.47	-0.32	5.60
2,775.0	3.67	173.62	2,772.1	-89.5	12.6	-89.6	0.55	0.52	-2.72
2,800.0	3.51	176.20	2,797.0	-91.1	12.7	-91.2	0.91	-0.64	10.32
2,825.0	3.50	177.21	2,822.0	-92.6	12.8	-92.7	0.25	-0.04	4.04
2,850.0	3.46	177.03	2,846.9	-94.1	12.9	-94.2	0.17	-0.16	-0.72
2,875.0	3.46	175.25	2,871.9	-95.6	13.0	-95.7	0.43	0.00	-7.12
2,900.0	3.36	173.67	2,896.8	-97.1	13.1	-97.2	0.55	-0.40	-6.32
2,925.0	3.20	172.30	2,921.8	-98.5	13.3	-98.6	0.71	-0.64	-5.48
2,950.0	3.09	169.90	2,946.8	-99.9	13.5	-100.0	0.69	-0.44	-9.60
2,975.0	2.99	169.33	2,971.7	-101.2	13.7	-101.3	0.42	-0.40	-2.28
3,000.0	3.13	167.18	2,996.7	-102.5	14.0	-102.6	0.72	0.56	-8.60
3,025.0	3.00	165.80	3,021.7	-103.8	14.3	-103.9	0.60	-0.52	-5.52
3,050.0	3.04	168.45	3,046.6	-105.1	14.6	-105.2	0.58	0.16	10.60
3,075.0	3.09	168.27	3,071.6	-106.4	14.9	-106.5	0.20	0.20	-0.72
3,100.0	3.07	168.49	3,096.5	-107.7	15.1	-107.8	0.09	-0.08	0.88
3,125.0	3.26	168.87	3,121.5	-109.1	15.4	-109.2	0.76	0.76	1.52
3,150.0	3.59	168.62	3,146.5	-110.5	15.7	-110.6	1.32	1.32	-1.00
3,175.0	3.56	169.74	3,171.4	-112.1	16.0	-112.2	0.30	-0.12	4.48
3,200.0	3.65	168.89	3,196.4	-113.6	16.3	-113.7	0.42	0.36	-3.40
3,225.0	3.69	169.24	3,221.3	-115.2	16.6	-115.3	0.18	0.16	1.40
3,250.0	3.73	168.06	3,246.3	-116.8	16.9	-116.9	0.34	0.16	-4.72
3,275.0	3.60	166.34	3,271.2	-118.3	17.3	-118.4	0.68	-0.52	-6.88
3,300.0	3.38	164.73	3,296.2	-119.8	17.6	-119.9	0.96	-0.88	-6.44
3,325.0	3.29	164.27	3,321.1	-121.2	18.0	-121.3	0.38	-0.36	-1.84
3,350.0	3.22	162.72	3,346.1	-122.5	18.4	-122.7	0.45	-0.28	-6.20
3,375.0	3.21	162.70	3,371.0	-123.9	18.9	-124.0	0.04	-0.04	-0.08
3,400.0	3.28	162.49	3,396.0	-125.2	19.3	-125.4	0.28	0.28	-0.84
3,425.0	3.18	161.53	3,421.0	-126.6	19.7	-126.7	0.45	-0.40	-3.84
3,450.0	3.07	163.07	3,445.9	-127.9	20.1	-128.0	0.55	-0.44	6.16
3,475.0	3.21	162.87	3,470.9	-129.2	20.5	-129.3	0.56	0.56	-0.80
3,500.0	3.47	162.98	3,495.8	-130.6	21.0	-130.7	1.04	1.04	0.44
3,525.0	4.25	170.34	3,520.8	-132.2	21.3	-132.4	3.69	3.12	29.44
3,550.0	4.63	171.18	3,545.7	-134.1	21.6	-134.3	1.54	1.52	3.36

Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FEZ FED COM #604H
Wellbore: OWS
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FEZ FED COM #604H
TVD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21)
MD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21)
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	4.75	171.91	3,570.6	-136.1	21.9	-136.3	0.54	0.48	2.92
3,600.0	4.80	172.30	3,595.5	-138.2	22.2	-138.4	0.24	0.20	1.56
3,625.0	4.82	172.45	3,620.5	-140.3	22.5	-140.5	0.09	0.08	0.60
3,650.0	4.76	169.48	3,645.4	-142.3	22.8	-142.5	1.02	-0.24	-11.88
3,675.0	4.48	168.52	3,670.3	-144.3	23.2	-144.5	1.16	-1.12	-3.84
3,700.0	4.48	168.42	3,695.2	-146.2	23.6	-146.4	0.03	0.00	-0.40
3,725.0	4.56	166.36	3,720.1	-148.2	24.0	-148.3	0.72	0.32	-8.24
3,750.0	4.56	166.46	3,745.1	-150.1	24.5	-150.3	0.03	0.00	0.40
3,775.0	4.47	166.79	3,770.0	-152.0	25.0	-152.2	0.37	-0.36	1.32
3,800.0	4.48	166.50	3,794.9	-153.9	25.4	-154.1	0.10	0.04	-1.16
3,825.0	4.44	168.94	3,819.8	-155.8	25.8	-156.0	0.78	-0.16	9.76
3,850.0	4.53	168.30	3,844.7	-157.7	26.2	-157.9	0.41	0.36	-2.56
3,875.0	4.56	173.06	3,869.7	-159.7	26.5	-159.9	1.51	0.12	19.04
3,900.0	4.88	183.36	3,894.6	-161.7	26.6	-161.9	3.62	1.28	41.20
3,925.0	4.99	186.72	3,919.5	-163.9	26.4	-164.1	1.24	0.44	13.44
3,950.0	5.12	186.41	3,944.4	-166.1	26.1	-166.2	0.53	0.52	-1.24
3,975.0	5.17	186.49	3,969.3	-168.3	25.9	-168.5	0.20	0.20	0.32
4,000.0	5.08	187.10	3,994.2	-170.5	25.6	-170.7	0.42	-0.36	2.44
4,025.0	4.98	185.26	4,019.1	-172.7	25.4	-172.9	0.76	-0.40	-7.36
4,050.0	4.90	183.22	4,044.0	-174.8	25.2	-175.0	0.77	-0.32	-8.16
4,075.0	4.86	181.90	4,068.9	-176.9	25.1	-177.1	0.48	-0.16	-5.28
4,100.0	4.80	179.90	4,093.8	-179.1	25.1	-179.2	0.72	-0.24	-8.00
4,125.0	4.80	178.40	4,118.7	-181.1	25.1	-181.3	0.50	0.00	-6.00
4,150.0	4.63	177.31	4,143.7	-183.2	25.2	-183.4	0.77	-0.68	-4.36
4,175.0	4.56	175.49	4,168.6	-185.2	25.3	-185.4	0.65	-0.28	-7.28
4,200.0	4.48	173.33	4,193.5	-187.2	25.5	-187.3	0.75	-0.32	-8.64
4,225.0	4.41	169.86	4,218.4	-189.1	25.8	-189.3	1.11	-0.28	-13.88
4,250.0	4.33	167.05	4,243.3	-190.9	26.2	-191.1	0.91	-0.32	-11.24
4,275.0	4.31	164.09	4,268.3	-192.8	26.7	-193.0	0.90	-0.08	-11.84
4,300.0	4.35	161.16	4,293.2	-194.6	27.2	-194.8	0.90	0.16	-11.72
4,325.0	4.57	158.98	4,318.1	-196.4	27.9	-196.6	1.11	0.88	-8.72
4,350.0	4.57	157.47	4,343.1	-198.2	28.6	-198.4	0.48	0.00	-6.04
4,375.0	4.61	156.76	4,368.0	-200.1	29.4	-200.3	0.28	0.16	-2.84
4,400.0	4.61	157.19	4,392.9	-201.9	30.2	-202.1	0.14	0.00	1.72
4,425.0	4.67	157.44	4,417.8	-203.8	31.0	-204.0	0.25	0.24	1.00
4,450.0	4.92	158.87	4,442.7	-205.7	31.7	-206.0	1.11	1.00	5.72
4,475.0	4.91	164.10	4,467.6	-207.8	32.4	-208.0	1.79	-0.04	20.92
4,500.0	5.01	171.72	4,492.5	-209.9	32.9	-210.1	2.66	0.40	30.48
4,525.0	5.05	174.86	4,517.4	-212.0	33.1	-212.3	1.11	0.16	12.56
4,550.0	5.11	179.01	4,542.3	-214.3	33.3	-214.5	1.49	0.24	16.60
4,575.0	4.68	187.32	4,567.3	-216.4	33.1	-216.6	3.31	-1.72	33.24
4,600.0	4.54	192.99	4,592.2	-218.4	32.8	-218.6	1.91	-0.56	22.68
4,625.0	4.28	194.63	4,617.1	-220.2	32.3	-220.5	1.16	-1.04	6.56

Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FEZ FED COM #604H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FEZ FED COM #604H
TVD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21)
MD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21)
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	4.13	196.45	4,642.0	-222.0	31.8	-222.2	0.80	-0.60	7.28
4,675.0	3.36	193.78	4,667.0	-223.6	31.4	-223.8	3.16	-3.08	-10.68
4,700.0	2.65	189.79	4,691.9	-224.8	31.1	-225.1	2.96	-2.84	-15.96
4,725.0	2.26	186.12	4,716.9	-225.9	31.0	-226.1	1.68	-1.56	-14.68
4,750.0	1.46	168.30	4,741.9	-226.7	31.0	-226.9	3.91	-3.20	-71.28
4,775.0	1.07	151.51	4,766.9	-227.2	31.2	-227.5	2.14	-1.56	-67.16
4,800.0	1.01	128.30	4,791.9	-227.6	31.5	-227.8	1.69	-0.24	-92.84
4,825.0	1.06	110.63	4,816.9	-227.8	31.9	-228.0	1.29	0.20	-70.68
4,850.0	1.05	100.96	4,841.9	-227.9	32.3	-228.1	0.71	-0.04	-38.68
4,875.0	0.99	93.34	4,866.9	-228.0	32.7	-228.2	0.59	-0.24	-30.48
4,900.0	0.97	88.97	4,891.9	-228.0	33.2	-228.2	0.31	-0.08	-17.48
4,925.0	1.01	91.44	4,916.9	-228.0	33.6	-228.2	0.23	0.16	9.88
4,950.0	1.30	90.29	4,941.9	-228.0	34.1	-228.2	1.16	1.16	-4.60
4,975.0	1.37	96.83	4,966.9	-228.0	34.7	-228.3	0.67	0.28	26.16
5,000.0	1.36	95.48	4,991.9	-228.1	35.3	-228.3	0.13	-0.04	-5.40
5,025.0	1.23	101.37	5,016.8	-228.2	35.8	-228.4	0.74	-0.52	23.56
5,050.0	1.09	111.35	5,041.8	-228.3	36.3	-228.6	0.98	-0.56	39.92
5,075.0	0.84	138.00	5,066.8	-228.5	36.7	-228.8	2.03	-1.00	106.60
5,100.0	0.74	153.78	5,091.8	-228.8	36.8	-229.1	0.95	-0.40	63.12
5,125.0	0.60	220.80	5,116.8	-229.1	36.8	-229.3	3.00	-0.56	268.08
5,150.0	1.18	264.18	5,141.8	-229.2	36.5	-229.4	3.40	2.32	173.52
5,175.0	1.56	273.50	5,166.8	-229.2	35.9	-229.4	1.76	1.52	37.28
5,200.0	1.56	275.24	5,191.8	-229.1	35.2	-229.4	0.19	0.00	6.96
5,225.0	1.67	276.18	5,216.8	-229.1	34.5	-229.3	0.45	0.44	3.76
5,250.0	1.65	274.22	5,241.8	-229.0	33.8	-229.2	0.24	-0.08	-7.84
5,275.0	1.51	275.43	5,266.8	-228.9	33.1	-229.2	0.58	-0.56	4.84
5,300.0	1.62	271.92	5,291.8	-228.9	32.4	-229.1	0.58	0.44	-14.04
5,325.0	1.60	271.78	5,316.8	-228.9	31.7	-229.1	0.08	-0.08	-0.56
5,350.0	1.56	273.21	5,341.8	-228.8	31.0	-229.1	0.22	-0.16	5.72
5,375.0	1.60	273.05	5,366.7	-228.8	30.3	-229.0	0.16	0.16	-0.64
5,400.0	1.63	272.88	5,391.7	-228.8	29.6	-229.0	0.12	0.12	-0.68
5,425.0	1.69	271.55	5,416.7	-228.7	28.9	-229.0	0.29	0.24	-5.32
5,450.0	1.48	270.95	5,441.7	-228.7	28.2	-228.9	0.84	-0.84	-2.40
5,475.0	1.32	270.91	5,466.7	-228.7	27.6	-228.9	0.64	-0.64	-0.16
5,500.0	1.01	265.68	5,491.7	-228.7	27.1	-228.9	1.31	-1.24	-20.92
5,525.0	0.82	254.75	5,516.7	-228.8	26.7	-229.0	1.03	-0.76	-43.72
5,550.0	0.63	240.18	5,541.7	-228.9	26.4	-229.1	1.05	-0.76	-58.28
5,575.0	0.49	224.58	5,566.7	-229.1	26.2	-229.2	0.82	-0.56	-62.40
5,600.0	0.43	219.61	5,591.7	-229.2	26.1	-229.4	0.29	-0.24	-19.88
5,625.0	0.50	213.72	5,616.7	-229.4	26.0	-229.6	0.34	0.28	-23.56
5,650.0	0.45	220.25	5,641.7	-229.5	25.9	-229.7	0.29	-0.20	26.12
5,675.0	0.52	219.20	5,666.7	-229.7	25.7	-229.9	0.28	0.28	-4.20
5,700.0	0.46	209.83	5,691.7	-229.9	25.6	-230.1	0.40	-0.24	-37.48

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well FEZ FED COM #604H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Site:	BULLDOG	MD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Well:	FEZ FED COM #604H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	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)
5,725.0	0.49	219.97	5,716.7	-230.0	25.5	-230.2	0.36	0.12	40.56
5,750.0	0.46	214.79	5,741.7	-230.2	25.4	-230.4	0.21	-0.12	-20.72
5,775.0	0.48	216.97	5,766.7	-230.4	25.2	-230.5	0.11	0.08	8.72
5,800.0	0.44	215.41	5,791.7	-230.5	25.1	-230.7	0.17	-0.16	-6.24
5,825.0	0.50	220.11	5,816.7	-230.7	25.0	-230.9	0.29	0.24	18.80
5,850.0	0.42	216.52	5,841.7	-230.8	24.9	-231.0	0.34	-0.32	-14.36
5,875.0	0.46	214.83	5,866.7	-231.0	24.8	-231.2	0.17	0.16	-6.76
5,900.0	0.55	225.73	5,891.7	-231.2	24.6	-231.3	0.53	0.36	43.60
5,925.0	0.47	215.83	5,916.7	-231.3	24.5	-231.5	0.47	-0.32	-39.60
5,950.0	0.53	221.98	5,941.7	-231.5	24.3	-231.7	0.32	0.24	24.60
5,975.0	0.48	215.32	5,966.7	-231.7	24.2	-231.9	0.31	-0.20	-26.64
6,000.0	0.37	217.70	5,991.7	-231.8	24.1	-232.0	0.45	-0.44	9.52
6,025.0	0.45	216.44	6,016.7	-232.0	24.0	-232.1	0.32	0.32	-5.04
6,050.0	0.54	219.11	6,041.7	-232.1	23.8	-232.3	0.37	0.36	10.68
6,075.0	0.42	217.72	6,066.7	-232.3	23.7	-232.5	0.48	-0.48	-5.56
6,100.0	0.58	216.76	6,091.7	-232.5	23.6	-232.6	0.64	0.64	-3.84
6,125.0	0.56	220.97	6,116.7	-232.7	23.4	-232.8	0.19	-0.08	16.84
6,150.0	0.39	226.47	6,141.7	-232.8	23.3	-233.0	0.70	-0.68	22.00
6,175.0	0.53	220.51	6,166.7	-233.0	23.1	-233.1	0.59	0.56	-23.84
6,200.0	0.53	219.65	6,191.7	-233.1	23.0	-233.3	0.03	0.00	-3.44
6,225.0	0.50	221.38	6,216.7	-233.3	22.8	-233.5	0.14	-0.12	6.92
6,250.0	0.52	215.95	6,241.7	-233.5	22.7	-233.7	0.21	0.08	-21.72
6,275.0	0.50	233.30	6,266.7	-233.6	22.6	-233.8	0.62	-0.08	69.40
6,300.0	0.37	232.62	6,291.7	-233.8	22.4	-233.9	0.52	-0.52	-2.72
6,325.0	0.44	232.73	6,316.7	-233.9	22.3	-234.0	0.28	0.28	0.44
6,350.0	0.35	239.54	6,341.7	-234.0	22.1	-234.1	0.41	-0.36	27.24
6,375.0	0.46	239.41	6,366.7	-234.1	22.0	-234.2	0.44	0.44	-0.52
6,400.0	0.43	222.89	6,391.7	-234.2	21.8	-234.3	0.53	-0.12	-66.08
6,425.0	0.34	239.74	6,416.7	-234.3	21.7	-234.4	0.57	-0.36	67.40
6,450.0	0.30	236.03	6,441.7	-234.4	21.6	-234.5	0.18	-0.16	-14.84
6,475.0	0.38	243.17	6,466.7	-234.4	21.4	-234.6	0.36	0.32	28.56
6,500.0	0.40	240.73	6,491.7	-234.5	21.3	-234.7	0.10	0.08	-9.76
6,525.0	0.30	238.22	6,516.7	-234.6	21.2	-234.7	0.40	-0.40	-10.04
6,550.0	0.34	241.91	6,541.7	-234.7	21.0	-234.8	0.18	0.16	14.76
6,575.0	0.27	232.53	6,566.7	-234.7	20.9	-234.9	0.34	-0.28	-37.52
6,600.0	0.31	248.86	6,591.7	-234.8	20.8	-234.9	0.37	0.16	65.32
6,625.0	0.27	245.53	6,616.7	-234.8	20.7	-235.0	0.17	-0.16	-13.32
6,650.0	0.26	256.23	6,641.7	-234.9	20.6	-235.0	0.20	-0.04	42.80
6,675.0	0.22	266.43	6,666.7	-234.9	20.5	-235.0	0.23	-0.16	40.80
6,700.0	0.24	262.19	6,691.7	-234.9	20.4	-235.0	0.10	0.08	-16.96
6,725.0	0.31	253.34	6,716.7	-234.9	20.3	-235.1	0.33	0.28	-35.40
6,750.0	0.27	248.99	6,741.7	-235.0	20.2	-235.1	0.18	-0.16	-17.40
6,775.0	0.31	239.76	6,766.7	-235.0	20.0	-235.2	0.25	0.16	-36.92
6,800.0	0.31	250.05	6,791.7	-235.1	19.9	-235.2	0.22	0.00	41.16

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well FEZ FED COM #604H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Site:	BULLDOG	MD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Well:	FEZ FED COM #604H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	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	0.25	254.45	6,816.7	-235.1	19.8	-235.3	0.25	-0.24	17.60
6,850.0	0.33	256.28	6,841.7	-235.1	19.7	-235.3	0.32	0.32	7.32
6,875.0	0.30	259.24	6,866.7	-235.2	19.5	-235.3	0.14	-0.12	11.84
6,900.0	0.28	252.01	6,891.7	-235.2	19.4	-235.3	0.17	-0.08	-28.92
6,925.0	0.29	266.83	6,916.7	-235.2	19.3	-235.4	0.30	0.04	59.28
6,950.0	0.33	246.45	6,941.7	-235.3	19.2	-235.4	0.47	0.16	-81.52
6,975.0	0.35	253.26	6,966.7	-235.3	19.0	-235.4	0.18	0.08	27.24
7,000.0	0.28	243.25	6,991.7	-235.4	18.9	-235.5	0.36	-0.28	-40.04
7,025.0	0.19	257.59	7,016.7	-235.4	18.8	-235.5	0.43	-0.36	57.36
7,050.0	0.17	245.97	7,041.7	-235.4	18.7	-235.6	0.17	-0.08	-46.48
7,075.0	0.15	227.66	7,066.7	-235.5	18.7	-235.6	0.22	-0.08	-73.24
7,100.0	0.18	255.18	7,091.7	-235.5	18.6	-235.6	0.33	0.12	110.08
7,125.0	0.12	244.62	7,116.7	-235.5	18.6	-235.6	0.26	-0.24	-42.24
7,150.0	0.07	223.05	7,141.7	-235.5	18.5	-235.7	0.24	-0.20	-86.28
7,175.0	0.14	258.90	7,166.7	-235.6	18.5	-235.7	0.37	0.28	143.40
7,200.0	0.10	245.55	7,191.7	-235.6	18.4	-235.7	0.19	-0.16	-53.40
7,225.0	0.11	246.27	7,216.7	-235.6	18.4	-235.7	0.04	0.04	2.88
7,250.0	0.07	209.73	7,241.7	-235.6	18.4	-235.7	0.27	-0.16	-146.16
7,275.0	0.07	204.97	7,266.7	-235.6	18.3	-235.8	0.02	0.00	-19.04
7,300.0	0.08	237.45	7,291.7	-235.7	18.3	-235.8	0.17	0.04	129.92
7,325.0	0.04	225.96	7,316.7	-235.7	18.3	-235.8	0.17	-0.16	-45.96
7,350.0	0.08	194.03	7,341.7	-235.7	18.3	-235.8	0.20	0.16	-127.72
7,375.0	0.09	217.81	7,366.7	-235.7	18.3	-235.9	0.15	0.04	95.12
7,400.0	0.03	253.86	7,391.7	-235.7	18.3	-235.9	0.27	-0.24	144.20
7,425.0	0.07	127.89	7,416.7	-235.8	18.3	-235.9	0.36	0.16	-503.88
7,450.0	0.09	109.59	7,441.7	-235.8	18.3	-235.9	0.13	0.08	-73.20
7,475.0	0.06	230.59	7,466.7	-235.8	18.3	-235.9	0.53	-0.12	484.00
7,500.0	0.07	214.91	7,491.7	-235.8	18.3	-235.9	0.08	0.04	-62.72
7,525.0	0.05	199.67	7,516.7	-235.8	18.3	-236.0	0.10	-0.08	-60.96
7,550.0	0.02	282.68	7,541.7	-235.8	18.3	-236.0	0.21	-0.12	332.04
7,575.0	0.01	49.75	7,566.7	-235.8	18.3	-236.0	0.11	-0.04	508.28
7,600.0	0.02	138.54	7,591.7	-235.8	18.3	-236.0	0.09	0.04	355.16
7,625.0	0.04	61.67	7,616.7	-235.8	18.3	-236.0	0.16	0.08	-307.48
7,650.0	0.06	121.06	7,641.7	-235.8	18.3	-236.0	0.21	0.08	237.56
7,675.0	0.01	59.25	7,666.7	-235.8	18.3	-236.0	0.22	-0.20	-247.24
7,700.0	0.14	112.73	7,691.7	-235.9	18.3	-236.0	0.54	0.52	213.92
7,725.0	0.10	79.92	7,716.7	-235.9	18.4	-236.0	0.31	-0.16	-131.24
7,750.0	0.10	41.99	7,741.7	-235.8	18.4	-236.0	0.26	0.00	-151.72
7,775.0	0.11	60.24	7,766.7	-235.8	18.5	-236.0	0.14	0.04	73.00
7,800.0	0.12	92.92	7,791.7	-235.8	18.5	-235.9	0.26	0.04	130.72
7,825.0	0.17	87.45	7,816.7	-235.8	18.6	-235.9	0.21	0.20	-21.88
7,850.0	0.26	67.71	7,841.7	-235.8	18.7	-235.9	0.46	0.36	-78.96
7,875.0	0.21	76.29	7,866.7	-235.8	18.8	-235.9	0.24	-0.20	34.32

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well FEZ FED COM #604H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Site:	BULLDOG	MD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Well:	FEZ FED COM #604H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	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	0.31	64.78	7,891.7	-235.7	18.9	-235.8	0.45	0.40	-46.04
7,925.0	0.34	72.92	7,916.7	-235.7	19.0	-235.8	0.22	0.12	32.56
7,950.0	0.28	70.75	7,941.7	-235.6	19.1	-235.8	0.24	-0.24	-8.68
7,975.0	0.36	65.99	7,966.7	-235.6	19.2	-235.7	0.34	0.32	-19.04
8,000.0	0.43	73.15	7,991.7	-235.5	19.4	-235.6	0.34	0.28	28.64
8,025.0	0.45	74.64	8,016.7	-235.5	19.6	-235.6	0.09	0.08	5.96
8,050.0	0.47	74.19	8,041.7	-235.4	19.8	-235.5	0.08	0.08	-1.80
8,075.0	0.44	74.18	8,066.7	-235.3	20.0	-235.5	0.12	-0.12	-0.04
8,100.0	0.61	69.70	8,091.7	-235.3	20.2	-235.4	0.70	0.68	-17.92
8,125.0	0.56	74.66	8,116.7	-235.2	20.4	-235.3	0.28	-0.20	19.84
8,150.0	0.66	75.65	8,141.7	-235.1	20.7	-235.3	0.40	0.40	3.96
8,175.0	0.64	75.03	8,166.7	-235.1	21.0	-235.2	0.08	-0.08	-2.48
8,200.0	0.66	79.93	8,191.7	-235.0	21.2	-235.1	0.24	0.08	19.60
8,225.0	0.66	79.41	8,216.6	-234.9	21.5	-235.1	0.02	0.00	-2.08
8,250.0	0.70	76.69	8,241.6	-234.9	21.8	-235.0	0.21	0.16	-10.88
8,275.0	0.68	82.06	8,266.6	-234.8	22.1	-235.0	0.27	-0.08	21.48
8,300.0	0.76	77.70	8,291.6	-234.8	22.4	-234.9	0.39	0.32	-17.44
8,325.0	0.77	76.80	8,316.6	-234.7	22.8	-234.9	0.06	0.04	-3.60
8,350.0	0.85	79.78	8,341.6	-234.6	23.1	-234.8	0.36	0.32	11.92
8,375.0	0.94	80.02	8,366.6	-234.6	23.5	-234.7	0.36	0.36	0.96
8,400.0	0.99	79.07	8,391.6	-234.5	23.9	-234.7	0.21	0.20	-3.80
8,425.0	1.13	80.87	8,416.6	-234.4	24.4	-234.6	0.58	0.56	7.20
8,450.0	1.11	80.47	8,441.6	-234.3	24.8	-234.5	0.09	-0.08	-1.60
8,475.0	1.13	77.97	8,466.6	-234.2	25.3	-234.4	0.21	0.08	-10.00
8,500.0	1.00	83.65	8,491.6	-234.2	25.8	-234.3	0.67	-0.52	22.72
8,525.0	1.12	79.58	8,516.6	-234.1	26.2	-234.3	0.57	0.48	-16.28
8,550.0	1.22	81.27	8,541.6	-234.0	26.7	-234.2	0.42	0.40	6.76
8,575.0	1.23	79.84	8,566.6	-233.9	27.3	-234.1	0.13	0.04	-5.72
8,600.0	1.26	83.44	8,591.6	-233.8	27.8	-234.0	0.34	0.12	14.40
8,625.0	1.29	80.83	8,616.6	-233.8	28.3	-234.0	0.26	0.12	-10.44
8,650.0	1.27	80.30	8,641.6	-233.7	28.9	-233.9	0.09	-0.08	-2.12
8,675.0	1.23	79.09	8,666.6	-233.6	29.4	-233.8	0.19	-0.16	-4.84
8,700.0	1.29	81.83	8,691.6	-233.5	30.0	-233.7	0.34	0.24	10.96
8,725.0	1.27	83.20	8,716.6	-233.4	30.5	-233.6	0.15	-0.08	5.48
8,750.0	1.24	82.70	8,741.6	-233.3	31.1	-233.6	0.13	-0.12	-2.00
8,775.0	1.24	82.54	8,766.6	-233.3	31.6	-233.5	0.01	0.00	-0.64
8,800.0	1.34	80.95	8,791.5	-233.2	32.2	-233.4	0.42	0.40	-6.36
8,825.0	1.32	81.77	8,816.5	-233.1	32.7	-233.3	0.11	-0.08	3.28
8,850.0	1.28	79.90	8,841.5	-233.0	33.3	-233.3	0.23	-0.16	-7.48
8,875.0	1.31	78.85	8,866.5	-232.9	33.9	-233.2	0.15	0.12	-4.20
8,900.0	1.38	80.02	8,891.5	-232.8	34.4	-233.1	0.30	0.28	4.68
8,925.0	1.53	77.65	8,916.5	-232.7	35.1	-232.9	0.65	0.60	-9.48
8,950.0	1.44	77.85	8,941.5	-232.5	35.7	-232.8	0.36	-0.36	0.80

Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FEZ FED COM #604H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FEZ FED COM #604H
TVD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21)
MD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21)
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	1.49	79.07	8,966.5	-232.4	36.3	-232.7	0.24	0.20	4.88
9,000.0	1.48	78.35	8,991.5	-232.3	37.0	-232.6	0.08	-0.04	-2.88
9,025.0	1.54	78.55	9,016.5	-232.2	37.6	-232.4	0.24	0.24	0.80
9,050.0	1.61	76.78	9,041.5	-232.0	38.3	-232.3	0.34	0.28	-7.08
9,075.0	1.59	77.59	9,066.5	-231.9	38.9	-232.1	0.12	-0.08	3.24
9,100.0	1.56	77.91	9,091.4	-231.7	39.6	-232.0	0.13	-0.12	1.28
9,125.0	1.51	77.41	9,116.4	-231.6	40.3	-231.9	0.21	-0.20	-2.00
9,150.0	1.60	76.48	9,141.4	-231.4	40.9	-231.7	0.37	0.36	-3.72
9,175.0	1.58	76.26	9,166.4	-231.2	41.6	-231.6	0.08	-0.08	-0.88
9,200.0	1.58	76.56	9,191.4	-231.1	42.3	-231.4	0.03	0.00	1.20
9,225.0	1.57	76.42	9,216.4	-230.9	42.9	-231.2	0.04	-0.04	-0.56
9,250.0	1.64	76.34	9,241.4	-230.8	43.6	-231.1	0.28	0.28	-0.32
9,275.0	1.54	76.49	9,266.4	-230.6	44.3	-230.9	0.40	-0.40	0.60
9,300.0	1.60	78.67	9,291.4	-230.4	45.0	-230.8	0.34	0.24	8.72
9,325.0	1.43	75.43	9,316.4	-230.3	45.6	-230.6	0.76	-0.68	-12.96
9,350.0	1.47	77.62	9,341.4	-230.2	46.2	-230.5	0.27	0.16	8.76
9,375.0	1.42	79.82	9,366.3	-230.0	46.8	-230.4	0.30	-0.20	8.80
9,400.0	1.40	73.82	9,391.3	-229.9	47.4	-230.2	0.60	-0.08	-24.00
9,425.0	0.74	55.10	9,416.3	-229.7	47.9	-230.1	2.95	-2.64	-74.88
9,450.0	0.47	42.80	9,441.3	-229.5	48.1	-229.9	1.19	-1.08	-49.20
9,475.0	0.48	30.62	9,466.3	-229.4	48.2	-229.7	0.41	0.04	-48.72
9,500.0	0.47	18.63	9,491.3	-229.2	48.3	-229.5	0.40	-0.04	-47.96
9,525.0	0.45	23.66	9,516.3	-229.0	48.4	-229.4	0.18	-0.08	20.12
9,550.0	0.38	19.63	9,541.3	-228.8	48.4	-229.2	0.30	-0.28	-16.12
9,575.0	0.25	5.68	9,566.3	-228.7	48.5	-229.1	0.60	-0.52	-55.80
9,600.0	0.30	341.61	9,591.3	-228.6	48.4	-228.9	0.50	0.20	-96.28
9,625.0	0.27	330.89	9,616.3	-228.5	48.4	-228.8	0.24	-0.12	-42.88
9,650.0	0.29	307.37	9,641.3	-228.4	48.3	-228.7	0.46	0.08	-94.08
9,675.0	0.33	312.42	9,666.3	-228.3	48.2	-228.7	0.19	0.16	20.20
9,700.0	0.23	302.44	9,691.3	-228.2	48.1	-228.6	0.44	-0.40	-39.92
9,725.0	0.18	300.55	9,716.3	-228.2	48.0	-228.5	0.20	-0.20	-7.56
9,750.0	0.39	281.83	9,741.3	-228.1	47.9	-228.5	0.91	0.84	-74.88
9,775.0	0.28	269.36	9,766.3	-228.1	47.8	-228.5	0.53	-0.44	-49.88
9,800.0	0.41	250.80	9,791.3	-228.2	47.6	-228.5	0.68	0.52	-74.24
9,825.0	0.47	234.99	9,816.3	-228.2	47.5	-228.6	0.54	0.24	-63.24
9,850.0	0.56	234.01	9,841.3	-228.4	47.3	-228.7	0.36	0.36	-3.92
9,875.0	0.72	229.01	9,866.3	-228.5	47.1	-228.9	0.68	0.64	-20.00
9,900.0	0.78	223.54	9,891.3	-228.8	46.8	-229.1	0.37	0.24	-21.88
9,925.0	0.71	217.94	9,916.3	-229.0	46.6	-229.4	0.40	-0.28	-22.40
9,950.0	0.80	224.01	9,941.3	-229.3	46.4	-229.6	0.48	0.36	24.28
9,975.0	0.82	221.12	9,966.3	-229.5	46.2	-229.9	0.18	0.08	-11.56
10,000.0	0.89	223.96	9,991.3	-229.8	45.9	-230.1	0.33	0.28	11.36
10,025.0	0.86	224.29	10,016.3	-230.1	45.6	-230.4	0.12	-0.12	1.32
10,050.0	0.91	225.69	10,041.3	-230.3	45.4	-230.7	0.22	0.20	5.60

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well FEZ FED COM #604H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Site:	BULLDOG	MD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Well:	FEZ FED COM #604H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	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	0.87	230.34	10,066.3	-230.6	45.1	-230.9	0.33	-0.16	18.60
10,100.0	0.90	227.76	10,091.3	-230.9	44.8	-231.2	0.20	0.12	-10.32
10,125.0	1.00	226.75	10,116.3	-231.1	44.5	-231.5	0.41	0.40	-4.04
10,150.0	1.00	230.30	10,141.3	-231.4	44.2	-231.8	0.25	0.00	14.20
10,175.0	1.02	229.22	10,166.3	-231.7	43.8	-232.0	0.11	0.08	-4.32
10,200.0	1.08	231.41	10,191.3	-232.0	43.5	-232.3	0.29	0.24	8.76
10,225.0	1.13	232.74	10,216.3	-232.3	43.1	-232.6	0.22	0.20	5.32
10,250.0	1.23	230.64	10,241.3	-232.6	42.7	-232.9	0.44	0.40	-8.40
10,275.0	1.17	234.98	10,266.3	-232.9	42.3	-233.3	0.44	-0.24	17.36
10,300.0	1.19	229.27	10,291.3	-233.3	41.9	-233.6	0.48	0.08	-22.84
10,325.0	1.23	233.57	10,316.3	-233.6	41.4	-233.9	0.40	0.16	17.20
10,350.0	1.22	241.53	10,341.3	-233.9	41.0	-234.2	0.68	-0.04	31.84
10,375.0	1.20	244.46	10,366.2	-234.1	40.5	-234.4	0.26	-0.08	11.72
10,400.0	1.19	244.74	10,391.2	-234.3	40.1	-234.6	0.05	-0.04	1.12
10,425.0	1.30	246.72	10,416.2	-234.6	39.6	-234.8	0.47	0.44	7.92
10,450.0	1.30	245.00	10,441.2	-234.8	39.0	-235.1	0.16	0.00	-6.88
10,475.0	1.39	246.12	10,466.2	-235.0	38.5	-235.3	0.38	0.36	4.48
10,500.0	1.29	245.15	10,491.2	-235.3	38.0	-235.6	0.41	-0.40	-3.88
10,525.0	1.34	241.39	10,516.2	-235.5	37.5	-235.8	0.40	0.20	-15.04
10,550.0	1.36	242.33	10,541.2	-235.8	36.9	-236.1	0.12	0.08	3.76
10,575.0	1.41	246.32	10,566.2	-236.1	36.4	-236.3	0.43	0.20	15.96
10,600.0	1.59	244.33	10,591.2	-236.3	35.8	-236.6	0.75	0.72	-7.96
10,625.0	1.95	246.14	10,616.2	-236.7	35.1	-236.9	1.46	1.44	7.24
10,650.0	2.18	247.62	10,641.2	-237.0	34.3	-237.3	0.94	0.92	5.92
10,675.0	2.18	245.92	10,666.1	-237.4	33.4	-237.6	0.26	0.00	-6.80
10,700.0	2.17	239.53	10,691.1	-237.8	32.6	-238.1	0.97	-0.04	-25.56
10,725.0	2.23	232.83	10,716.1	-238.4	31.8	-238.6	1.06	0.24	-26.80
10,750.0	2.26	225.71	10,741.1	-239.0	31.0	-239.2	1.12	0.12	-28.48
10,775.0	2.25	215.69	10,766.1	-239.7	30.4	-240.0	1.58	-0.04	-40.08
10,800.0	2.29	209.51	10,791.0	-240.6	29.9	-240.8	0.99	0.16	-24.72
10,825.0	2.35	204.03	10,816.0	-241.5	29.4	-241.7	0.92	0.24	-21.92
10,850.0	2.41	202.28	10,841.0	-242.4	29.0	-242.6	0.38	0.24	-7.00
10,875.0	2.45	200.01	10,866.0	-243.4	28.6	-243.6	0.42	0.16	-9.08
10,900.0	2.38	198.30	10,891.0	-244.4	28.3	-244.6	0.40	-0.28	-6.84
10,925.0	2.42	196.35	10,915.9	-245.4	28.0	-245.6	0.36	0.16	-7.80
10,950.0	2.49	196.14	10,940.9	-246.4	27.7	-246.6	0.28	0.28	-0.84
10,975.0	2.55	197.64	10,965.9	-247.5	27.3	-247.7	0.36	0.24	6.00
11,000.0	2.59	197.72	10,990.9	-248.6	27.0	-248.8	0.16	0.16	0.32
11,025.0	2.65	197.43	11,015.8	-249.7	26.6	-249.8	0.25	0.24	-1.16
11,050.0	2.78	198.27	11,040.8	-250.8	26.3	-251.0	0.54	0.52	3.36
11,075.0	2.73	198.10	11,065.8	-251.9	25.9	-252.1	0.20	-0.20	-0.68
11,100.0	2.63	200.54	11,090.8	-253.0	25.5	-253.2	0.61	-0.40	9.76
11,125.0	2.46	203.90	11,115.7	-254.1	25.1	-254.2	0.90	-0.68	13.44

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well FEZ FED COM #604H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Site:	BULLDOG	MD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Well:	FEZ FED COM #604H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	Database:	EDM_Users

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
11,150.0	2.40	208.43	11,140.7	-255.0	24.6	-255.2	0.80	-0.24	18.12
11,175.0	2.41	214.51	11,165.7	-255.9	24.1	-256.1	1.02	0.04	24.32
11,200.0	2.51	216.90	11,190.7	-256.8	23.5	-256.9	0.57	0.40	9.56
11,225.0	2.58	215.74	11,215.6	-257.7	22.8	-257.8	0.35	0.28	-4.64
11,250.0	2.80	219.88	11,240.6	-258.6	22.1	-258.7	1.17	0.88	16.56
11,275.0	2.83	219.76	11,265.6	-259.5	21.3	-259.7	0.12	0.12	-0.48
11,300.0	2.74	222.18	11,290.6	-260.4	20.5	-260.6	0.59	-0.36	9.68
11,325.0	2.46	230.36	11,315.5	-261.2	19.7	-261.4	1.86	-1.12	32.72
11,350.0	1.79	241.48	11,340.5	-261.8	18.9	-261.9	3.13	-2.68	44.48
11,375.0	1.27	283.26	11,365.5	-261.9	18.3	-262.0	4.78	-2.08	167.12
11,398.0	1.51	325.38	11,388.5	-261.6	17.9	-261.7	4.45	1.04	183.13
11,431.0	2.54	353.19	11,421.5	-260.5	17.6	-260.6	4.23	3.12	84.27
11,456.0	2.40	352.79	11,446.4	-259.4	17.4	-259.5	0.56	-0.56	-1.60
11,533.0	2.08	353.08	11,523.4	-256.4	17.1	-256.6	0.42	-0.42	0.38
11,564.0	2.06	358.24	11,554.4	-255.3	17.0	-255.4	0.60	-0.06	16.65
11,627.0	1.60	2.68	11,617.3	-253.3	17.0	-253.4	0.76	-0.73	7.05
11,690.0	3.11	3.15	11,680.3	-250.7	17.1	-250.8	2.40	2.40	0.75
11,721.0	4.07	5.11	11,711.2	-248.8	17.3	-248.9	3.12	3.10	6.32
11,753.0	6.16	26.69	11,743.1	-246.1	18.1	-246.3	8.77	6.53	67.44
11,784.0	9.90	10.72	11,773.8	-242.0	19.4	-242.2	13.94	12.06	-51.52
11,815.0	14.67	4.90	11,804.1	-235.5	20.2	-235.6	15.88	15.39	-18.77
11,847.0	17.06	357.49	11,834.9	-226.8	20.4	-226.9	9.78	7.47	-23.16
11,878.0	20.81	358.65	11,864.2	-216.7	20.0	-216.8	12.16	12.10	3.74
11,910.0	23.09	359.99	11,893.9	-204.7	19.9	-204.9	7.29	7.13	4.19
11,941.0	23.75	356.05	11,922.3	-192.4	19.5	-192.6	5.48	2.13	-12.71
11,973.0	25.26	353.67	11,951.4	-179.2	18.3	-179.4	5.64	4.72	-7.44
12,004.0	25.00	348.35	11,979.5	-166.2	16.2	-166.3	7.33	-0.84	-17.16
12,036.0	27.46	347.53	12,008.2	-152.4	13.2	-152.5	7.77	7.69	-2.56
12,067.0	30.94	349.59	12,035.2	-137.6	10.3	-137.7	11.68	11.23	6.65
12,098.0	33.23	347.68	12,061.5	-121.4	7.0	-121.5	8.08	7.39	-6.16
12,130.0	36.38	347.91	12,087.8	-103.6	3.2	-103.6	9.85	9.84	0.72
12,161.0	39.52	350.52	12,112.2	-84.9	-0.4	-84.9	11.37	10.13	8.42
12,193.0	42.14	352.25	12,136.4	-64.2	-3.5	-64.2	8.92	8.19	5.41
12,224.0	43.78	352.30	12,159.1	-43.2	-6.4	-43.2	5.29	5.29	0.16
12,255.0	44.88	350.94	12,181.3	-21.8	-9.5	-21.7	4.69	3.55	-4.39
12,284.0	47.24	348.47	12,201.4	-1.3	-13.3	-1.2	10.19	8.14	-8.52
12,316.0	51.04	346.48	12,222.4	22.3	-18.5	22.5	12.77	11.88	-6.22
12,347.0	55.46	346.39	12,240.9	46.5	-24.3	46.7	14.26	14.26	-0.29
12,379.0	59.57	347.34	12,258.1	72.8	-30.5	73.0	13.09	12.84	2.97
12,410.0	63.65	348.83	12,272.8	99.4	-36.1	99.7	13.82	13.16	4.81
12,441.0	68.03	349.83	12,285.5	127.2	-41.3	127.5	14.43	14.13	3.23
12,474.0	71.77	351.12	12,296.8	157.8	-46.5	158.1	11.91	11.33	3.91
12,505.0	75.32	350.96	12,305.6	187.1	-51.1	187.5	11.46	11.45	-0.52

Survey Report

Company: NORTHERN DELAWARE BASIN
Project: LEA COUNTY, NM
Site: BULLDOG
Well: FEZ FED COM #604H
Wellbore: OWB
Design: ACTUAL WELLPATH

Local Co-ordinate Reference: Well FEZ FED COM #604H
TVD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21)
MD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21)
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)
12,537.0	78.67	351.83	12,312.8	218.0	-55.7	218.4	10.80	10.47	2.72
12,567.0	83.16	351.69	12,317.6	247.3	-60.0	247.7	14.97	14.97	-0.47
12,612.0	87.97	352.86	12,321.0	291.7	-66.0	292.2	11.00	10.69	2.60
12,706.0	91.53	354.99	12,321.4	385.2	-76.0	385.7	4.41	3.79	2.27
12,800.0	92.01	354.82	12,318.5	478.8	-84.3	479.4	0.54	0.51	-0.18
12,895.0	92.04	354.43	12,315.2	573.3	-93.2	574.0	0.41	0.03	-0.41
12,989.0	92.20	353.49	12,311.7	666.7	-103.1	667.4	1.01	0.17	-1.00
13,083.0	92.09	353.19	12,308.2	760.0	-114.0	760.8	0.34	-0.12	-0.32
13,178.0	92.16	352.88	12,304.7	854.2	-125.5	855.1	0.33	0.07	-0.33
13,272.0	91.84	351.90	12,301.4	947.3	-137.9	948.3	1.10	-0.34	-1.04
13,366.0	90.04	352.56	12,299.8	1,040.5	-150.6	1,041.6	2.04	-1.91	0.70
13,461.0	89.87	354.54	12,299.9	1,134.9	-161.3	1,136.0	2.09	-0.18	2.08
13,555.0	89.79	355.52	12,300.2	1,228.5	-169.5	1,229.7	1.05	-0.09	1.04
13,649.0	90.73	359.15	12,299.8	1,322.4	-173.8	1,323.6	3.99	1.00	3.86
13,744.0	90.70	0.82	12,298.6	1,417.4	-173.8	1,418.6	1.76	-0.03	1.76
13,838.0	90.59	2.21	12,297.5	1,511.3	-171.4	1,512.6	1.48	-0.12	1.48
13,932.0	90.82	2.25	12,296.4	1,605.3	-167.7	1,606.5	0.25	0.24	0.04
14,026.0	90.81	2.02	12,295.0	1,699.2	-164.2	1,700.4	0.24	-0.01	-0.24
14,120.0	90.38	1.64	12,294.1	1,793.1	-161.2	1,794.3	0.61	-0.46	-0.40
14,215.0	90.39	1.84	12,293.4	1,888.1	-158.3	1,889.2	0.21	0.01	0.21
14,309.0	90.81	1.39	12,292.4	1,982.0	-155.7	1,983.1	0.65	0.45	-0.48
14,403.0	90.90	1.38	12,291.0	2,076.0	-153.4	2,077.1	0.10	0.10	-0.01
14,498.0	90.76	1.00	12,289.7	2,171.0	-151.4	2,172.0	0.43	-0.15	-0.40
14,592.0	90.67	0.66	12,288.5	2,264.9	-150.1	2,266.0	0.37	-0.10	-0.36
14,686.0	90.56	0.51	12,287.5	2,358.9	-149.1	2,360.0	0.20	-0.12	-0.16
14,780.0	90.59	0.21	12,286.5	2,452.9	-148.5	2,454.0	0.32	0.03	-0.32
14,874.0	90.22	0.03	12,285.9	2,546.9	-148.3	2,548.0	0.44	-0.39	-0.19
14,969.0	89.48	359.26	12,286.1	2,641.9	-148.9	2,643.0	1.12	-0.78	-0.81
15,063.0	89.79	358.39	12,286.7	2,735.9	-150.8	2,737.0	0.98	0.33	-0.93
15,157.0	89.48	359.42	12,287.3	2,829.9	-152.6	2,830.9	1.14	-0.33	1.10
15,251.0	89.21	0.50	12,288.4	2,923.9	-152.7	2,924.9	1.18	-0.29	1.15
15,346.0	88.68	0.54	12,290.1	3,018.9	-151.8	3,019.9	0.56	-0.56	0.04
15,440.0	89.70	0.18	12,291.5	3,112.8	-151.2	3,113.9	1.15	1.09	-0.38
15,534.0	90.79	359.76	12,291.1	3,206.8	-151.3	3,207.9	1.24	1.16	-0.45
15,629.0	90.87	359.54	12,289.7	3,301.8	-151.9	3,302.9	0.25	0.08	-0.23
15,723.0	90.59	359.34	12,288.5	3,395.8	-152.8	3,396.9	0.37	-0.30	-0.21
15,817.0	90.21	359.09	12,287.8	3,489.8	-154.1	3,490.9	0.48	-0.40	-0.27
15,911.0	90.07	358.59	12,287.6	3,583.8	-156.0	3,584.9	0.55	-0.15	-0.53
16,005.0	91.29	359.00	12,286.5	3,677.8	-158.0	3,678.8	1.37	1.30	0.44
16,099.0	91.44	0.21	12,284.2	3,771.7	-158.6	3,772.8	1.30	0.16	1.29
16,194.0	89.21	358.38	12,283.7	3,866.7	-159.8	3,867.8	3.04	-2.35	-1.93
16,288.0	90.01	359.78	12,284.3	3,960.7	-161.3	3,961.8	1.72	0.85	1.49
16,382.0	90.70	1.34	12,283.8	4,054.7	-160.4	4,055.8	1.81	0.73	1.66
16,476.0	90.79	1.00	12,282.5	4,148.7	-158.4	4,149.7	0.37	0.10	-0.36

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well FEZ FED COM #604H
Project:	LEA COUNTY, NM	TVD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Site:	BULLDOG	MD Reference:	RKB=3262.9+29 @ 3291.9usft (NORAM 21)
Well:	FEZ FED COM #604H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	ACTUAL WELLPATH	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)
16,570.0	90.45	0.88	12,281.5	4,242.6	-156.9	4,243.7	0.38	-0.36	-0.13
16,665.0	90.19	0.82	12,281.0	4,337.6	-155.5	4,338.7	0.28	-0.27	-0.06
16,759.0	90.96	1.48	12,280.1	4,431.6	-153.6	4,432.6	1.08	0.82	0.70
16,853.0	91.33	1.84	12,278.2	4,525.5	-150.9	4,526.5	0.55	0.39	0.38
16,947.0	91.12	1.46	12,276.2	4,619.5	-148.2	4,620.5	0.46	-0.22	-0.40
17,042.0	89.82	0.24	12,275.4	4,714.5	-146.8	4,715.4	1.88	-1.37	-1.28
17,136.0	89.38	358.91	12,276.0	4,808.5	-147.5	4,809.4	1.49	-0.47	-1.41
17,230.0	91.19	0.32	12,275.6	4,902.4	-148.1	4,903.4	2.44	1.93	1.50
17,324.0	90.58	359.38	12,274.1	4,996.4	-148.3	4,997.4	1.19	-0.65	-1.00
17,419.0	90.45	358.73	12,273.3	5,091.4	-149.9	5,092.4	0.70	-0.14	-0.68
17,513.0	90.93	358.45	12,272.1	5,185.4	-152.2	5,186.4	0.59	0.51	-0.30
17,607.0	91.58	358.47	12,270.1	5,279.3	-154.7	5,280.3	0.69	0.69	0.02
17,701.0	90.27	358.73	12,268.6	5,373.3	-157.0	5,374.3	1.42	-1.39	0.28
17,795.0	89.68	358.94	12,268.6	5,467.3	-159.0	5,468.3	0.67	-0.63	0.22
17,889.0	88.87	359.40	12,269.8	5,561.2	-160.3	5,562.3	0.99	-0.86	0.49
17,983.0	88.73	359.38	12,271.8	5,655.2	-161.3	5,656.3	0.15	-0.15	-0.02
18,078.0	89.31	0.00	12,273.4	5,750.2	-161.8	5,751.2	0.89	0.61	0.65
18,172.0	88.51	0.38	12,275.2	5,844.2	-161.5	5,845.2	0.94	-0.85	0.40
18,266.0	88.11	0.20	12,277.9	5,938.1	-161.0	5,939.2	0.47	-0.43	-0.19
18,360.0	87.67	0.07	12,281.4	6,032.1	-160.8	6,033.1	0.49	-0.47	-0.14
18,454.0	88.68	359.78	12,284.4	6,126.0	-160.9	6,127.1	1.12	1.07	-0.31
18,549.0	90.33	359.97	12,285.2	6,221.0	-161.2	6,222.0	1.75	1.74	0.20
18,643.0	89.61	359.04	12,285.3	6,315.0	-162.0	6,316.0	1.25	-0.77	-0.99
18,737.0	90.30	358.58	12,285.3	6,409.0	-163.9	6,410.0	0.88	0.73	-0.49
18,831.0	90.53	358.99	12,284.7	6,503.0	-165.9	6,504.0	0.50	0.24	0.44
18,926.0	91.10	359.80	12,283.3	6,597.9	-166.9	6,599.0	1.04	0.60	0.85
19,020.0	90.73	359.27	12,281.8	6,691.9	-167.7	6,693.0	0.69	-0.39	-0.56
19,044.0	90.70	359.41	12,281.5	6,715.9	-168.0	6,717.0	0.60	-0.13	0.58
19,139.0	90.05	0.18	12,280.9	6,810.9	-168.3	6,812.0	1.06	-0.68	0.81
19,233.0	89.78	1.68	12,281.0	6,904.9	-166.8	6,906.0	1.62	-0.29	1.60
19,327.0	89.93	1.64	12,281.3	6,998.9	-164.0	6,999.9	0.17	0.16	-0.04
19,422.0	90.24	0.85	12,281.1	7,093.8	-162.0	7,094.9	0.89	0.33	-0.83
19,516.0	90.24	0.04	12,280.7	7,187.8	-161.2	7,188.8	0.86	0.00	-0.86
19,610.0	90.18	359.82	12,280.4	7,281.8	-161.4	7,282.8	0.24	-0.06	-0.23
19,704.0	90.24	357.11	12,280.0	7,375.8	-163.9	7,376.8	2.88	0.06	-2.88
19,798.0	90.02	357.70	12,279.8	7,469.7	-168.1	7,470.8	0.67	-0.23	0.63
19,892.0	89.58	0.37	12,280.2	7,563.7	-169.7	7,564.7	2.88	-0.47	2.84
19,987.0	89.28	1.60	12,281.1	7,658.7	-168.1	7,659.7	1.33	-0.32	1.29
20,081.0	89.22	0.42	12,282.3	7,752.6	-166.4	7,753.7	1.26	-0.06	-1.26
20,175.0	88.98	358.58	12,283.8	7,846.6	-167.3	7,847.6	1.97	-0.26	-1.96
20,270.0	88.81	358.73	12,285.6	7,941.6	-169.5	7,942.6	0.24	-0.18	0.16
20,364.0	89.19	359.17	12,287.3	8,035.5	-171.2	8,036.6	0.62	0.40	0.47
20,458.0	89.24	359.46	12,288.6	8,129.5	-172.3	8,130.6	0.31	0.05	0.31

Survey Report

Company: NORTHERN DELAWARE BASIN Project: LEA COUNTY, NM Site: BULLDOG Well: FEZ FED COM #604H Wellbore: OWB Design: ACTUAL WELLPATH	Local Co-ordinate Reference: Well FEZ FED COM #604H TVD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21) MD Reference: RKB=3262.9+29 @ 3291.9usft (NORAM 21) North Reference: Grid Survey Calculation Method: Minimum Curvature Database: EDM_Users	
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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)
20,552.0	89.25	0.36	12,289.8	8,223.5	-172.5	8,224.6	0.96	0.01	0.96
20,646.0	89.27	1.39	12,291.0	8,317.5	-171.0	8,318.5	1.10	0.02	1.10
20,741.0	89.21	1.26	12,292.3	8,412.5	-168.8	8,413.5	0.15	-0.06	-0.14
20,835.0	89.39	0.00	12,293.4	8,506.4	-167.8	8,507.5	1.35	0.19	-1.34
20,930.0	90.21	1.35	12,293.8	8,601.4	-166.7	8,602.4	1.66	0.86	1.42
21,024.0	91.35	4.85	12,292.5	8,695.3	-161.6	8,696.2	3.92	1.21	3.72
21,118.0	88.59	6.49	12,292.5	8,788.8	-152.3	8,789.7	3.42	-2.94	1.74
21,244.0	87.93	4.86	12,296.4	8,914.1	-139.9	8,914.9	1.40	-0.52	-1.29
21,338.0	85.94	358.21	12,301.4	9,007.9	-137.4	9,008.7	7.37	-2.12	-7.07
21,432.0	85.91	356.15	12,308.1	9,101.5	-142.0	9,102.3	2.19	-0.03	-2.19
21,526.0	85.58	355.25	12,315.0	9,195.0	-149.0	9,195.9	1.02	-0.35	-0.96
21,621.0	86.19	355.36	12,321.9	9,289.5	-156.7	9,290.4	0.65	0.64	0.12
21,715.0	87.53	355.97	12,327.0	9,383.0	-163.8	9,384.0	1.57	1.43	0.65
21,809.0	87.69	356.70	12,330.9	9,476.8	-169.8	9,477.8	0.79	0.17	0.78
21,903.0	87.79	356.23	12,334.6	9,570.5	-175.6	9,571.6	0.51	0.11	-0.50
21,997.0	90.27	359.07	12,336.2	9,664.4	-179.5	9,665.5	4.01	2.64	3.02
22,091.0	91.64	359.91	12,334.7	9,758.4	-180.3	9,759.5	1.71	1.46	0.89
22,186.0	91.38	359.82	12,332.2	9,853.4	-180.5	9,854.4	0.29	-0.27	-0.09
22,280.0	90.38	358.98	12,330.7	9,947.3	-181.5	9,948.4	1.39	-1.06	-0.89
22,368.0	90.25	359.05	12,330.2	10,035.3	-183.0	10,036.4	0.17	-0.15	0.08
22,434.0	90.25	359.05	12,329.9	10,101.3	-184.1	10,102.4	0.00	0.00	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
22,368.0	12,330.2	10,035.3	-183.0	Last MWD Svy
22,434.0	12,329.9	10,101.3	-184.1	PTB

Checked By: _____	Approved By: _____	Date: _____
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