

DELAWARE BASIN WEST

EDDY COUNTY, NM

ATLAS

ADMIRAL FEDERAL COM 505H

ST01

Design: ST01

Standard Survey Report

15 May, 2020

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well ADMIRAL FEDERAL COM 505H
Project:	EDDY COUNTY, NM	TVD Reference:	KB=27' @ 3007.5usft (Nabors 893)
Site:	ATLAS	MD Reference:	KB=27' @ 3007.5usft (Nabors 893)
Well:	ADMIRAL FEDERAL COM 505H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	edm

Project	EDDY 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		

Well	ADMIRAL FEDERAL COM 505H, ACTIVE			
Well Position	+N/-S	0.0 usft	Northing:	398,188.90 usft
	+E/-W	0.0 usft	Easting:	608,349.30 usft
Position Uncertainty		3.0 usft	Wellhead Elevation:	usft
			Ground Level:	2,980.5 usft

Wellbore	ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/5/2020	6.82	59.84	47,525.30385689

Design	ST01				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	9,020.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	3.30	

Survey Program	Date	5/15/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
142.0	9,020.0	MWD-INTERMEDIATE (OWB)	MWD+IFR1+FDIR	OWSG MWD + IFR1 + FDIR Correction	
9,097.0	18,974.0	MWD-LATERAL (ST01)	MWD+IFR1+FDIR	OWSG MWD + IFR1 + FDIR 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	
142.0	0.74	145.82	142.0	-0.8	0.5	-0.7	0.52	0.52	0.00	
235.0	0.46	176.43	235.0	-1.6	0.9	-1.6	0.45	-0.30	32.91	
326.0	0.45	100.93	326.0	-2.1	1.2	-2.0	0.61	-0.01	-82.97	
416.0	0.45	82.79	416.0	-2.1	1.9	-2.0	0.16	0.00	-20.16	
510.0	1.49	81.93	510.0	-1.9	3.5	-1.7	1.11	1.11	-0.91	
601.0	2.07	84.14	600.9	-1.5	6.3	-1.2	0.64	0.64	2.43	
655.0	2.11	81.26	654.9	-1.3	8.3	-0.8	0.21	0.07	-5.33	
788.0	1.92	67.72	787.8	-0.1	12.8	0.7	0.38	-0.14	-10.18	
879.0	1.49	75.54	878.8	0.8	15.3	1.7	0.54	-0.47	8.59	
970.0	2.14	123.59	969.7	0.2	17.9	1.2	1.75	0.71	52.80	
1,062.0	2.26	130.47	1,061.7	-2.0	20.7	-0.8	0.32	0.13	7.48	
1,156.0	1.98	117.06	1,155.6	-3.9	23.5	-2.5	0.60	-0.30	-14.27	
1,250.0	1.97	120.22	1,249.5	-5.5	26.4	-3.9	0.12	-0.01	3.36	
1,343.0	2.25	116.80	1,342.5	-7.1	29.4	-5.4	0.33	0.30	-3.68	

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Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	edm

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)
1,438.0	2.67	107.38	1,437.4	-8.6	33.2	-6.7	0.61	0.44	-9.92
1,532.0	2.94	105.52	1,531.3	-9.9	37.6	-7.7	0.30	0.29	-1.98
1,627.0	3.43	129.97	1,626.1	-12.4	42.1	-9.9	1.51	0.52	25.74
1,721.0	3.17	137.81	1,720.0	-16.1	46.0	-13.4	0.55	-0.28	8.34
1,815.0	3.22	138.95	1,813.8	-20.0	49.5	-17.1	0.09	0.05	1.21
1,909.0	2.82	131.06	1,907.7	-23.5	53.0	-20.4	0.61	-0.43	-8.39
2,002.0	2.60	140.43	2,000.6	-26.6	56.0	-23.4	0.53	-0.24	10.08
2,096.0	2.32	149.44	2,094.5	-29.9	58.4	-26.5	0.51	-0.30	9.59
2,190.0	2.20	126.12	2,188.4	-32.6	60.8	-29.1	0.98	-0.13	-24.81
2,285.0	3.13	119.93	2,283.3	-35.0	64.5	-31.2	1.02	0.98	-6.52
2,379.0	4.32	122.79	2,377.1	-38.2	69.7	-34.1	1.28	1.27	3.04
2,474.0	4.10	122.18	2,471.9	-41.9	75.6	-37.5	0.24	-0.23	-0.64
2,568.0	4.48	126.17	2,565.6	-45.9	81.4	-41.1	0.51	0.40	4.24
2,662.0	5.15	121.83	2,659.3	-50.3	88.0	-45.2	0.81	0.71	-4.62
2,756.0	5.38	117.20	2,752.9	-54.5	95.5	-49.0	0.51	0.24	-4.93
2,850.0	5.28	121.05	2,846.5	-58.8	103.1	-52.8	0.39	-0.11	4.10
2,945.0	4.23	117.00	2,941.2	-62.6	109.9	-56.2	1.16	-1.11	-4.26
3,124.0	4.34	119.43	3,119.7	-68.9	121.7	-61.8	0.12	0.06	1.36
3,218.0	3.95	118.66	3,213.4	-72.3	127.7	-64.8	0.42	-0.41	-0.82
3,312.0	3.70	114.79	3,307.2	-75.1	133.3	-67.3	0.38	-0.27	-4.12
3,406.0	3.75	115.15	3,401.0	-77.7	138.8	-69.5	0.06	0.05	0.38
3,501.0	3.38	114.64	3,495.8	-80.1	144.2	-71.7	0.39	-0.39	-0.54
3,594.0	2.84	112.65	3,588.7	-82.2	148.8	-73.5	0.59	-0.58	-2.14
3,689.0	2.72	111.04	3,683.6	-83.9	153.0	-75.0	0.15	-0.13	-1.69
3,783.0	5.09	116.13	3,777.3	-86.5	158.9	-77.2	2.55	2.52	5.41
3,877.0	4.91	112.79	3,871.0	-89.9	166.3	-80.2	0.36	-0.19	-3.55
3,971.0	4.32	111.09	3,964.7	-92.8	173.3	-82.6	0.64	-0.63	-1.81
4,065.0	4.29	107.92	4,058.4	-95.1	180.0	-84.6	0.26	-0.03	-3.37
4,158.0	4.19	104.52	4,151.2	-97.0	186.6	-86.1	0.29	-0.11	-3.66
4,252.0	3.88	106.19	4,244.9	-98.8	193.0	-87.5	0.35	-0.33	1.78
4,346.0	3.73	105.49	4,338.7	-100.5	199.0	-88.9	0.17	-0.16	-0.74
4,441.0	5.21	121.29	4,433.4	-103.5	205.6	-91.6	2.01	1.56	16.63
4,535.0	5.92	121.24	4,527.0	-108.3	213.4	-95.8	0.76	0.76	-0.05
4,629.0	5.22	123.09	4,620.5	-113.1	221.1	-100.2	0.77	-0.74	1.97
4,723.0	4.81	120.43	4,714.2	-117.5	228.1	-104.1	0.50	-0.44	-2.83
4,817.0	4.78	120.46	4,807.9	-121.4	234.9	-107.7	0.03	-0.03	0.03
4,911.0	4.64	121.18	4,901.5	-125.4	241.5	-111.3	0.16	-0.15	0.77
5,006.0	4.36	121.96	4,996.2	-129.3	247.9	-114.8	0.30	-0.29	0.82
5,100.0	4.14	121.19	5,090.0	-132.9	253.8	-118.1	0.24	-0.23	-0.82
5,194.0	4.05	123.64	5,183.7	-136.5	259.5	-121.4	0.21	-0.10	2.61
5,288.0	3.72	131.18	5,277.5	-140.4	264.5	-124.9	0.65	-0.35	8.02
5,382.0	3.49	135.10	5,371.3	-144.4	268.9	-128.7	0.36	-0.24	4.17
5,476.0	3.46	112.03	5,465.2	-147.5	273.5	-131.5	1.48	-0.03	-24.54

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5,569.0	2.99	120.90	5,558.0	-149.8	278.2	-133.6	0.74	-0.51	9.54
5,663.0	2.53	132.60	5,651.9	-152.5	281.8	-136.0	0.77	-0.49	12.45
5,757.0	3.77	113.51	5,745.8	-155.1	286.2	-138.4	1.71	1.32	-20.31
5,851.0	3.81	112.16	5,839.6	-157.5	291.9	-140.5	0.10	0.04	-1.44
5,946.0	3.51	116.78	5,934.4	-160.0	297.4	-142.7	0.44	-0.32	4.86
6,040.0	3.22	119.96	6,028.2	-162.6	302.3	-145.0	0.37	-0.31	3.38
6,135.0	6.02	117.41	6,122.9	-166.3	309.0	-148.2	2.95	2.95	-2.68
6,229.0	6.61	115.52	6,216.3	-170.9	318.3	-152.3	0.67	0.63	-2.01
6,323.0	6.22	117.49	6,309.7	-175.5	327.7	-156.4	0.48	-0.41	2.10
6,417.0	5.90	116.50	6,403.2	-180.0	336.5	-160.4	0.36	-0.34	-1.05
6,511.0	5.70	117.31	6,496.7	-184.3	345.0	-164.2	0.23	-0.21	0.86
6,605.0	5.13	120.33	6,590.3	-188.6	352.8	-168.0	0.68	-0.61	3.21
6,699.0	4.57	121.04	6,684.0	-192.7	359.6	-171.7	0.60	-0.60	0.76
6,793.0	3.69	122.52	6,777.7	-196.2	365.4	-174.9	0.94	-0.94	1.57
6,888.0	3.72	118.89	6,872.5	-199.4	370.6	-177.7	0.25	0.03	-3.82
6,981.0	3.00	118.21	6,965.4	-202.0	375.4	-180.0	0.78	-0.77	-0.73
7,075.0	1.38	124.33	7,059.3	-203.8	378.5	-181.7	1.74	-1.72	6.51
7,169.0	2.48	107.33	7,153.2	-205.0	381.4	-182.7	1.31	1.17	-18.09
7,263.0	2.09	98.08	7,247.2	-205.9	385.0	-183.4	0.57	-0.41	-9.84
7,357.0	3.01	115.72	7,341.1	-207.2	389.0	-184.5	1.28	0.98	18.77
7,451.0	2.89	118.55	7,435.0	-209.4	393.3	-186.4	0.20	-0.13	3.01
7,544.0	1.78	124.18	7,527.9	-211.3	396.5	-188.2	1.22	-1.19	6.05
7,639.0	0.33	180.69	7,622.9	-212.4	397.7	-189.2	1.71	-1.53	59.48
7,733.0	0.95	152.67	7,716.9	-213.4	398.1	-190.1	0.72	0.66	-29.81
7,799.0	0.91	131.22	7,782.8	-214.2	398.7	-190.9	0.53	-0.06	-32.50
7,893.0	3.85	18.19	7,876.8	-211.7	400.3	-188.3	4.56	3.13	-120.24
7,987.0	2.71	16.18	7,970.6	-206.6	401.9	-183.1	1.22	-1.21	-2.14
8,081.0	5.65	12.69	8,064.4	-199.9	403.5	-176.4	3.14	3.13	-3.71
8,128.0	9.99	5.45	8,110.9	-193.6	404.4	-170.0	9.45	9.23	-15.40
8,175.0	14.15	8.12	8,156.9	-183.8	405.6	-160.2	8.93	8.85	5.68
8,222.0	18.01	12.43	8,202.0	-171.1	408.0	-147.3	8.59	8.21	9.17
8,268.0	19.11	12.15	8,245.6	-156.7	411.1	-132.9	2.40	2.39	-0.61
8,315.0	20.47	8.98	8,289.9	-141.1	414.0	-117.1	3.69	2.89	-6.74
8,331.0	20.61	9.09	8,304.8	-135.6	414.9	-111.5	0.91	0.88	0.69
8,363.0	21.27	6.96	8,334.7	-124.2	416.5	-100.1	3.15	2.06	-6.66
8,457.0	25.17	357.09	8,421.1	-87.3	417.5	-63.2	5.85	4.15	-10.50
8,488.0	29.59	358.58	8,448.6	-73.1	417.0	-49.0	14.43	14.26	4.81
8,520.0	31.05	4.16	8,476.3	-56.9	417.4	-32.9	9.91	4.56	17.44
8,551.0	33.08	7.79	8,502.5	-40.6	419.1	-16.4	9.03	6.55	11.71
8,583.0	36.36	10.68	8,528.8	-22.6	422.1	1.7	11.47	10.25	9.03
8,614.0	40.15	11.47	8,553.2	-3.8	425.8	20.7	12.33	12.23	2.55
8,645.0	43.77	12.56	8,576.2	16.5	430.1	41.2	11.91	11.68	3.52
8,676.0	48.43	13.15	8,597.7	38.3	435.1	63.2	15.09	15.03	1.90

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8,707.0	52.19	12.20	8,617.5	61.5	440.3	86.7	12.36	12.13	-3.06
8,739.0	54.83	13.18	8,636.5	86.6	446.0	112.1	8.61	8.25	3.06
8,770.0	58.61	13.77	8,653.6	111.8	452.0	137.6	12.30	12.19	1.90
8,801.0	62.34	14.86	8,668.8	138.0	458.7	164.1	12.41	12.03	3.52
8,833.0	66.06	15.05	8,682.8	165.8	466.1	192.3	11.64	11.63	0.59
8,864.0	70.82	16.08	8,694.1	193.5	473.8	220.5	15.66	15.35	3.32
8,895.0	75.86	16.70	8,703.0	222.0	482.2	249.4	16.37	16.26	2.00
8,926.0	80.37	16.65	8,709.4	251.1	490.9	278.9	14.55	14.55	-0.16
9,020.0	87.16	20.59	8,719.6	339.6	520.8	368.9	8.34	7.22	4.19
9,097.0	84.84	21.03	8,725.0	411.4	548.0	442.2	3.07	-3.01	0.57
9,128.0	83.43	19.56	8,728.2	440.3	558.7	471.7	6.55	-4.55	-4.74
9,191.0	86.99	15.31	8,733.4	500.2	577.5	532.5	8.78	5.65	-6.75
9,285.0	91.36	12.80	8,734.8	591.3	600.4	624.8	5.36	4.65	-2.67
9,379.0	90.25	8.18	8,733.4	683.7	617.5	718.1	5.05	-1.18	-4.91
9,473.0	90.52	8.41	8,732.8	776.7	631.0	811.7	0.38	0.29	0.24
9,567.0	91.15	8.17	8,731.4	869.7	644.6	905.3	0.72	0.67	-0.26
9,661.0	90.89	2.39	8,729.8	963.3	653.2	999.2	6.15	-0.28	-6.15
9,755.0	91.62	3.21	8,727.7	1,057.1	657.8	1,093.2	1.17	0.78	0.87
9,849.0	91.99	3.07	8,724.8	1,150.9	663.0	1,187.1	0.42	0.39	-0.15
9,942.0	91.50	1.06	8,721.9	1,243.8	666.3	1,280.1	2.22	-0.53	-2.16
10,036.0	92.34	2.86	8,718.8	1,337.7	669.5	1,374.0	2.11	0.89	1.91
10,130.0	93.25	3.07	8,714.2	1,431.5	674.4	1,467.9	0.99	0.97	0.22
10,223.0	93.17	359.56	8,709.0	1,524.3	676.5	1,560.7	3.77	-0.09	-3.77
10,317.0	91.59	358.21	8,705.1	1,618.2	674.7	1,654.3	2.21	-1.68	-1.44
10,420.0	90.63	357.62	8,703.1	1,721.1	670.9	1,756.8	1.09	-0.93	-0.57
10,514.0	91.28	358.43	8,701.5	1,815.0	667.7	1,850.4	1.10	0.69	0.86
10,608.0	88.62	356.52	8,701.6	1,908.9	663.5	1,943.9	3.48	-2.83	-2.03
10,702.0	88.99	358.87	8,703.6	2,002.8	659.8	2,037.4	2.53	0.39	2.50
10,796.0	89.35	0.13	8,704.9	2,096.8	658.9	2,131.2	1.39	0.38	1.34
10,890.0	90.47	0.67	8,705.1	2,190.8	659.6	2,225.1	1.32	1.19	0.57
10,985.0	90.88	0.49	8,703.9	2,285.8	660.6	2,320.0	0.47	0.43	-0.19
11,079.0	91.89	0.76	8,701.7	2,379.8	661.6	2,413.9	1.11	1.07	0.29
11,173.0	90.85	358.47	8,699.4	2,473.7	661.0	2,507.6	2.67	-1.11	-2.44
11,266.0	91.60	358.93	8,697.4	2,566.7	658.9	2,600.3	0.95	0.81	0.49
11,360.0	89.27	358.55	8,696.7	2,660.6	656.8	2,694.0	2.51	-2.48	-0.40
11,455.0	89.22	357.96	8,698.0	2,755.6	653.9	2,788.6	0.62	-0.05	-0.62
11,550.0	90.78	358.28	8,698.0	2,850.5	650.8	2,883.2	1.68	1.64	0.34
11,643.0	88.47	357.96	8,698.6	2,943.5	647.7	2,975.8	2.51	-2.48	-0.34
11,737.0	87.23	357.10	8,702.1	3,037.3	643.7	3,069.3	1.60	-1.32	-0.91
11,832.0	88.22	357.28	8,705.9	3,132.1	639.0	3,163.7	1.06	1.04	0.19
11,926.0	88.72	357.09	8,708.4	3,226.0	634.4	3,257.1	0.57	0.53	-0.20
12,020.0	91.01	0.01	8,708.6	3,319.9	632.0	3,350.8	3.94	2.44	3.10
12,114.0	93.39	1.71	8,705.0	3,413.8	633.4	3,444.6	3.11	2.53	1.81
12,208.0	92.58	1.42	8,700.1	3,507.7	636.0	3,538.4	0.92	-0.86	-0.31

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well ADMIRAL FEDERAL COM 505H
Project:	EDDY COUNTY, NM	TVD Reference:	KB=27' @ 3007.5usft (Nabors 893)
Site:	ATLAS	MD Reference:	KB=27' @ 3007.5usft (Nabors 893)
Well:	ADMIRAL FEDERAL COM 505H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	edm

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)
12,302.0	91.56	0.90	8,696.7	3,601.6	637.9	3,632.3	1.22	-1.09	-0.55
12,396.0	89.08	0.60	8,696.2	3,695.6	639.1	3,726.2	2.66	-2.64	-0.32
12,491.0	89.65	0.57	8,697.2	3,790.6	640.1	3,821.1	0.60	0.60	-0.03
12,585.0	92.36	0.23	8,695.6	3,884.5	640.8	3,915.0	2.91	2.88	-0.36
12,679.0	89.45	359.72	8,694.1	3,978.5	640.7	4,008.8	3.14	-3.10	-0.54
12,773.0	87.51	359.15	8,696.6	4,072.5	639.8	4,102.5	2.15	-2.06	-0.61
12,867.0	87.63	358.40	8,700.6	4,166.4	637.8	4,196.1	0.81	0.13	-0.80
12,961.0	91.20	0.12	8,701.5	4,260.3	636.6	4,289.9	4.22	3.80	1.83
13,055.0	91.28	358.45	8,699.5	4,354.3	635.4	4,383.6	1.78	0.09	-1.78
13,150.0	90.73	357.76	8,697.8	4,449.2	632.2	4,478.2	0.93	-0.58	-0.73
13,244.0	92.72	358.41	8,695.0	4,543.1	629.1	4,571.8	2.23	2.12	0.69
13,338.0	90.79	356.73	8,692.1	4,637.0	625.1	4,665.3	2.72	-2.05	-1.79
13,432.0	90.60	357.25	8,691.0	4,730.9	620.2	4,758.7	0.59	-0.20	0.55
13,525.0	89.72	357.70	8,690.7	4,823.8	616.1	4,851.2	1.06	-0.95	0.48
13,619.0	88.89	358.61	8,691.9	4,917.7	613.1	4,944.8	1.31	-0.88	0.97
13,714.0	88.62	0.60	8,693.9	5,012.7	612.4	5,039.6	2.11	-0.28	2.09
13,808.0	89.81	1.08	8,695.2	5,106.7	613.8	5,133.5	1.37	1.27	0.51
13,902.0	88.22	0.81	8,696.8	5,200.6	615.3	5,227.4	1.72	-1.69	-0.29
13,996.0	89.48	1.51	8,698.7	5,294.6	617.2	5,321.3	1.53	1.34	0.74
14,091.0	87.99	0.83	8,700.8	5,389.6	619.2	5,416.2	1.72	-1.57	-0.72
14,184.0	88.24	0.89	8,703.9	5,482.5	620.6	5,509.1	0.28	0.27	0.06
14,278.0	90.58	1.04	8,704.9	5,576.5	622.2	5,603.0	2.49	2.49	0.16
14,372.0	88.09	359.49	8,705.9	5,670.4	622.6	5,696.9	3.12	-2.65	-1.65
14,467.0	87.49	358.64	8,709.6	5,765.4	621.0	5,791.5	1.09	-0.63	-0.89
14,561.0	90.34	358.85	8,711.4	5,859.3	619.0	5,885.2	3.04	3.03	0.22
14,655.0	90.04	356.75	8,711.1	5,953.2	615.4	5,978.8	2.26	-0.32	-2.23
14,749.0	92.70	357.15	8,708.8	6,047.1	610.4	6,072.2	2.86	2.83	0.43
14,842.0	93.26	356.46	8,704.0	6,139.8	605.2	6,164.4	0.95	0.60	-0.74
14,936.0	91.09	357.27	8,700.4	6,233.6	600.1	6,257.8	2.46	-2.31	0.86
15,029.0	88.60	357.67	8,700.7	6,326.5	596.0	6,350.3	2.71	-2.68	0.43
15,123.0	89.45	359.26	8,702.3	6,420.4	593.4	6,443.9	1.92	0.90	1.69
15,217.0	88.62	359.49	8,703.9	6,514.4	592.4	6,537.7	0.92	-0.88	0.24
15,311.0	89.58	1.38	8,705.3	6,608.4	593.1	6,631.6	2.25	1.02	2.01
15,405.0	91.29	1.68	8,704.6	6,702.4	595.6	6,725.5	1.85	1.82	0.32
15,499.0	88.69	1.22	8,704.6	6,796.3	598.0	6,819.5	2.81	-2.77	-0.49
15,593.0	90.74	2.14	8,705.1	6,890.3	600.8	6,913.4	2.39	2.18	0.98
15,686.0	90.21	2.11	8,704.3	6,983.2	604.2	7,006.4	0.57	-0.57	-0.03
15,780.0	91.93	2.46	8,702.6	7,077.1	608.0	7,100.4	1.87	1.83	0.37
15,875.0	91.06	2.03	8,700.1	7,172.0	611.7	7,195.3	1.02	-0.92	-0.45
15,969.0	91.79	2.17	8,697.8	7,265.9	615.1	7,289.3	0.79	0.78	0.15
16,063.0	90.25	0.64	8,696.1	7,359.9	617.4	7,383.2	2.31	-1.64	-1.63
16,156.0	89.97	357.35	8,695.9	7,452.8	615.8	7,475.9	3.55	-0.30	-3.54
16,251.0	87.78	356.50	8,697.8	7,547.7	610.7	7,570.3	2.47	-2.31	-0.89

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well ADMIRAL FEDERAL COM 505H
Project:	EDDY COUNTY, NM	TVD Reference:	KB=27' @ 3007.5usft (Nabors 893)
Site:	ATLAS	MD Reference:	KB=27' @ 3007.5usft (Nabors 893)
Well:	ADMIRAL FEDERAL COM 505H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	edm

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)
16,345.0	88.06	356.72	8,701.2	7,641.4	605.2	7,663.6	0.38	0.30	0.23
16,438.0	89.43	357.12	8,703.2	7,734.3	600.2	7,756.0	1.53	1.47	0.43
16,533.0	89.91	356.97	8,703.8	7,829.2	595.3	7,850.4	0.53	0.51	-0.16
16,627.0	88.99	359.10	8,704.7	7,923.1	592.0	7,944.0	2.47	-0.98	2.27
16,722.0	89.85	359.66	8,705.6	8,018.1	591.0	8,038.8	1.08	0.91	0.59
16,816.0	91.14	359.81	8,704.8	8,112.1	590.6	8,132.6	1.38	1.37	0.16
16,911.0	91.84	359.89	8,702.4	8,207.0	590.3	8,227.4	0.74	0.74	0.08
17,004.0	89.99	359.30	8,700.9	8,300.0	589.7	8,320.2	2.09	-1.99	-0.63
17,098.0	89.66	358.97	8,701.2	8,394.0	588.3	8,413.9	0.50	-0.35	-0.35
17,192.0	91.28	358.88	8,700.4	8,488.0	586.5	8,507.7	1.73	1.72	-0.10
17,285.0	88.51	358.81	8,700.6	8,581.0	584.6	8,600.4	2.98	-2.98	-0.08
17,380.0	90.08	359.36	8,701.7	8,675.9	583.1	8,695.1	1.75	1.65	0.58
17,474.0	93.13	359.18	8,699.1	8,769.9	581.9	8,788.8	3.25	3.24	-0.19
17,568.0	91.20	358.86	8,695.5	8,863.8	580.3	8,882.5	2.08	-2.05	-0.34
17,662.0	91.00	358.49	8,693.7	8,957.8	578.1	8,976.2	0.45	-0.21	-0.39
17,756.0	90.19	358.37	8,692.8	9,051.7	575.5	9,069.8	0.87	-0.86	-0.13
17,850.0	87.81	358.68	8,694.4	9,145.7	573.1	9,163.5	2.55	-2.53	0.33
17,943.0	86.43	358.21	8,699.1	9,238.5	570.6	9,256.0	1.57	-1.48	-0.51
18,037.0	86.15	0.51	8,705.2	9,332.3	569.6	9,349.6	2.46	-0.30	2.45
18,131.0	86.91	1.89	8,710.9	9,426.1	571.5	9,443.4	1.67	0.81	1.47
18,225.0	88.40	2.33	8,714.7	9,520.0	575.0	9,537.3	1.65	1.59	0.47
18,319.0	90.67	4.51	8,715.5	9,613.8	580.6	9,631.2	3.35	2.41	2.32
18,414.0	89.35	2.64	8,715.4	9,708.6	586.5	9,726.2	2.41	-1.39	-1.97
18,507.0	90.08	2.92	8,715.9	9,801.5	591.0	9,819.2	0.84	0.78	0.30
18,601.0	92.01	3.72	8,714.2	9,895.3	596.5	9,913.2	2.22	2.05	0.85
18,696.0	91.98	3.58	8,710.9	9,990.0	602.5	10,008.2	0.15	-0.03	-0.15
18,790.0	92.46	3.30	8,707.2	10,083.8	608.1	10,102.1	0.59	0.51	-0.30
18,884.0	93.47	3.56	8,702.4	10,177.5	613.8	10,196.0	1.11	1.07	0.28
18,909.0	93.58	3.70	8,700.8	10,202.4	615.3	10,220.9	0.71	0.44	0.56
FINAL MWD @ 18909'MD									
18,923.7	93.58	3.70	8,699.9	10,217.0	616.3	10,235.6	0.00	0.00	0.00
LTP @ 18923.7'MD									
18,974.0	93.58	3.70	8,696.8	10,267.1	619.5	10,285.8	0.00	0.00	0.00
PTD @ 18974'MD									

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	Local Co-ordinate Reference:	Well ADMIRAL FEDERAL COM 505H
Project:	EDDY COUNTY, NM	TVD Reference:	KB=27' @ 3007.5usft (Nabors 893)
Site:	ATLAS	MD Reference:	KB=27' @ 3007.5usft (Nabors 893)
Well:	ADMIRAL FEDERAL COM 505H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	ST01	Database:	edm

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (ADMIRAL FEDE - actual wellpath misses target center by 353.8usft at 8634.9usft MD (8568.9 TVD, 9.8 N, 428.6 E) - Circle (radius 50.0)	0.00	0.00	8,703.0	-196.9	682.5	397,992.00	609,031.80	32° 5' 37.344 N	103° 58' 52.515 W
LTP (ADMIRAL FEDE - actual wellpath misses target center by 28.9usft at 18923.5usft MD (8699.9 TVD, 10216.9 N, 616.3 E) - Point	0.00	0.00	8,715.0	10,219.4	591.8	408,408.30	608,941.10	32° 7' 20.431 N	103° 58' 53.174 W
PBHL (ADMIRAL FEC - actual wellpath misses target center by 33.7usft at 18973.3usft MD (8696.8 TVD, 10266.4 N, 619.5 E) - Rectangle (sides W100.0 H1,531.0 D20.0)	-1.16	179.50	8,715.0	10,269.4	591.3	408,458.30	608,940.60	32° 7' 20.925 N	103° 58' 53.178 W

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
18,909.0	8,700.8	10,202.4	615.3	FINAL MWD @ 18909'MD
18,923.7	8,699.9	10,217.0	616.3	LTP @ 18923.7'MD
18,974.0	8,696.8	10,267.1	619.5	PTD @ 18974'MD

Checked By: _____ Approved By: _____ Date: _____