

NORTHERN DELAWARE BASIN

LEA COUNTY, NM

BULLDOG

PITCHBLEND FEDERAL 19-30 38H

OWB

Design: AWP

Standard Survey Report

11 February, 2020

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLENDE FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLENDE FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	Database:	edm

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		

Well	PITCHBLENDE FEDERAL 19-30 38H, ACTIVE			
Well Position	+N/-S	0.0 usft	Northing:	409,280.80 usft
	+E/-W	0.0 usft	Easting:	788,974.90 usft
Position Uncertainty		3.0 usft	Wellhead Elevation:	usft
			Latitude:	32° 7' 18.439 N
			Longitude:	103° 23' 59.721 W
			Ground Level:	3,330.0 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/6/2020	6.59	59.96	47,633.24227695

Design	AWP				
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	183.00	

Survey Program	Date	2/11/2020			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	11,755.0	GYRO (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
11,755.0	19,991.0	MWD-CURVE/LATERAL (OWB)	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	
100.0	0.22	72.17	100.0	0.1	0.2	-0.1	0.22	0.22	0.00	
125.0	0.32	102.69	125.0	0.1	0.3	-0.1	0.69	0.40	122.08	
150.0	0.27	142.39	150.0	0.0	0.4	0.0	0.82	-0.20	158.80	
175.0	0.29	155.04	175.0	-0.1	0.5	0.1	0.26	0.08	50.60	
200.0	0.19	148.46	200.0	-0.2	0.5	0.2	0.41	-0.40	-26.32	
225.0	0.27	169.22	225.0	-0.3	0.5	0.3	0.46	0.32	83.04	
250.0	0.18	193.66	250.0	-0.4	0.5	0.4	0.52	-0.36	97.76	
275.0	0.09	107.64	275.0	-0.4	0.6	0.4	0.78	-0.36	-344.08	
300.0	0.07	25.43	300.0	-0.4	0.6	0.4	0.43	-0.08	-328.84	
325.0	0.15	37.11	325.0	-0.4	0.6	0.4	0.33	0.32	46.72	
350.0	0.39	46.27	350.0	-0.3	0.7	0.3	0.97	0.96	36.64	
375.0	0.37	63.42	375.0	-0.2	0.8	0.2	0.46	-0.08	68.60	
400.0	0.36	51.12	400.0	-0.1	1.0	0.1	0.32	-0.04	-49.20	
425.0	0.45	52.72	425.0	0.0	1.1	0.0	0.36	0.36	6.40	

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Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
450.0	0.34	51.63	450.0	0.1	1.2	-0.2	0.44	-0.44	-4.36
475.0	0.31	28.00	475.0	0.2	1.3	-0.3	0.55	-0.12	-94.52
500.0	0.30	19.44	500.0	0.3	1.4	-0.4	0.19	-0.04	-34.24
525.0	0.34	15.44	525.0	0.5	1.4	-0.5	0.18	0.16	-16.00
550.0	0.38	7.03	550.0	0.6	1.4	-0.7	0.26	0.16	-33.64
575.0	0.60	15.91	575.0	0.8	1.5	-0.9	0.93	0.88	35.52
600.0	0.64	29.82	600.0	1.1	1.6	-1.1	0.62	0.16	55.64
625.0	0.72	40.60	625.0	1.3	1.8	-1.4	0.60	0.32	43.12
650.0	0.53	46.47	650.0	1.5	2.0	-1.6	0.80	-0.76	23.48
675.0	0.30	48.92	675.0	1.6	2.1	-1.7	0.92	-0.92	9.80
700.0	0.28	21.62	700.0	1.7	2.2	-1.8	0.55	-0.08	-109.20
725.0	0.45	15.59	725.0	1.9	2.2	-2.0	0.70	0.68	-24.12
750.0	0.59	15.73	750.0	2.1	2.3	-2.2	0.56	0.56	0.56
775.0	0.78	25.46	775.0	2.4	2.4	-2.5	0.89	0.76	38.92
800.0	0.68	34.93	800.0	2.6	2.5	-2.8	0.63	-0.40	37.88
825.0	0.70	28.87	825.0	2.9	2.7	-3.0	0.30	0.08	-24.24
850.0	0.69	21.78	850.0	3.2	2.8	-3.3	0.35	-0.04	-28.36
875.0	0.70	10.88	875.0	3.5	2.9	-3.6	0.53	0.04	-43.60
900.0	0.75	357.59	900.0	3.8	2.9	-3.9	0.70	0.20	-53.16
925.0	0.92	12.55	925.0	4.1	3.0	-4.3	1.10	0.68	59.84
950.0	0.90	25.62	950.0	4.5	3.1	-4.7	0.83	-0.08	52.28
975.0	0.72	21.51	975.0	4.8	3.2	-5.0	0.76	-0.72	-16.44
1,000.0	0.72	21.29	1,000.0	5.1	3.4	-5.3	0.01	0.00	-0.88
1,025.0	0.75	17.55	1,025.0	5.4	3.5	-5.6	0.23	0.12	-14.96
1,050.0	0.88	11.51	1,050.0	5.8	3.5	-6.0	0.62	0.52	-24.16
1,075.0	1.05	14.58	1,075.0	6.2	3.6	-6.4	0.71	0.68	12.28
1,100.0	0.90	19.59	1,100.0	6.6	3.8	-6.8	0.69	-0.60	20.04
1,125.0	0.74	32.50	1,124.9	6.9	3.9	-7.1	0.97	-0.64	51.64
1,150.0	0.72	35.80	1,149.9	7.2	4.1	-7.4	0.19	-0.08	13.20
1,175.0	0.48	30.43	1,174.9	7.4	4.2	-7.6	0.98	-0.96	-21.48
1,200.0	0.64	14.42	1,199.9	7.6	4.3	-7.8	0.89	0.64	-64.04
1,225.0	0.86	18.76	1,224.9	7.9	4.4	-8.2	0.91	0.88	17.36
1,250.0	1.02	27.66	1,249.9	8.3	4.6	-8.5	0.86	0.64	35.60
1,275.0	0.91	36.95	1,274.9	8.7	4.8	-8.9	0.76	-0.44	37.16
1,300.0	0.66	28.31	1,299.9	8.9	5.0	-9.2	1.10	-1.00	-34.56
1,325.0	0.57	336.83	1,324.9	9.2	5.0	-9.4	2.16	-0.36	-205.92
1,350.0	0.72	304.11	1,349.9	9.4	4.8	-9.6	1.56	0.60	-130.88
1,375.0	0.71	291.34	1,374.9	9.5	4.6	-9.8	0.64	-0.04	-51.08
1,400.0	0.69	279.62	1,399.9	9.6	4.3	-9.8	0.58	-0.08	-46.88
1,425.0	0.87	281.91	1,424.9	9.7	3.9	-9.9	0.73	0.72	9.16
1,450.0	0.95	293.71	1,449.9	9.8	3.6	-10.0	0.81	0.32	47.20
1,475.0	0.85	306.21	1,474.9	10.0	3.2	-10.2	0.88	-0.40	50.00
1,500.0	0.70	296.40	1,499.9	10.2	2.9	-10.3	0.80	-0.60	-39.24

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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)
1,525.0	0.82	285.73	1,524.9	10.3	2.6	-10.4	0.74	0.48	-42.68
1,550.0	0.83	284.57	1,549.9	10.4	2.3	-10.5	0.08	0.04	-4.64
1,575.0	1.11	278.38	1,574.9	10.5	1.9	-10.5	1.19	1.12	-24.76
1,600.0	1.08	284.09	1,599.9	10.6	1.4	-10.6	0.45	-0.12	22.84
1,625.0	1.09	291.72	1,624.9	10.7	0.9	-10.7	0.58	0.04	30.52
1,650.0	0.85	298.46	1,649.9	10.9	0.6	-10.9	1.06	-0.96	26.96
1,675.0	0.76	289.03	1,674.9	11.0	0.2	-11.0	0.64	-0.36	-37.72
1,700.0	0.90	287.12	1,699.9	11.1	-0.1	-11.1	0.57	0.56	-7.64
1,725.0	1.03	294.46	1,724.9	11.3	-0.5	-11.2	0.72	0.52	29.36
1,750.0	0.90	299.50	1,749.9	11.5	-0.9	-11.4	0.62	-0.52	20.16
1,775.0	0.76	283.73	1,774.9	11.6	-1.2	-11.5	1.07	-0.56	-63.08
1,800.0	0.89	278.27	1,799.9	11.7	-1.6	-11.6	0.61	0.52	-21.84
1,825.0	1.02	285.06	1,824.9	11.8	-2.0	-11.6	0.69	0.52	27.16
1,850.0	0.96	294.59	1,849.9	11.9	-2.4	-11.8	0.70	-0.24	38.12
1,875.0	0.76	285.31	1,874.9	12.0	-2.7	-11.9	0.97	-0.80	-37.12
1,900.0	0.66	279.82	1,899.9	12.1	-3.0	-11.9	0.48	-0.40	-21.96
1,925.0	0.83	265.97	1,924.9	12.1	-3.3	-11.9	0.99	0.68	-55.40
1,950.0	0.84	277.49	1,949.9	12.1	-3.7	-11.9	0.67	0.04	46.08
1,975.0	0.99	288.96	1,974.9	12.2	-4.1	-12.0	0.94	0.60	45.88
2,000.0	0.85	279.83	1,999.9	12.3	-4.5	-12.1	0.81	-0.56	-36.52
2,025.0	0.84	292.45	2,024.9	12.4	-4.8	-12.2	0.74	-0.04	50.48
2,050.0	0.74	288.73	2,049.9	12.5	-5.1	-12.3	0.45	-0.40	-14.88
2,075.0	0.67	274.58	2,074.8	12.6	-5.4	-12.3	0.75	-0.28	-56.60
2,100.0	0.83	270.62	2,099.8	12.6	-5.8	-12.3	0.67	0.64	-15.84
2,125.0	0.83	278.66	2,124.8	12.7	-6.1	-12.3	0.47	0.00	32.16
2,150.0	0.82	287.29	2,149.8	12.7	-6.5	-12.4	0.50	-0.04	34.52
2,175.0	0.64	278.90	2,174.8	12.8	-6.8	-12.4	0.84	-0.72	-33.56
2,200.0	0.78	270.37	2,199.8	12.8	-7.1	-12.4	0.70	0.56	-34.12
2,225.0	0.90	283.31	2,224.8	12.9	-7.5	-12.5	0.89	0.48	51.76
2,250.0	0.82	275.32	2,249.8	12.9	-7.8	-12.5	0.58	-0.32	-31.96
2,275.0	0.60	300.38	2,274.8	13.0	-8.1	-12.6	1.50	-0.88	100.24
2,300.0	0.48	282.83	2,299.8	13.1	-8.3	-12.7	0.81	-0.48	-70.20
2,325.0	0.65	274.82	2,324.8	13.1	-8.6	-12.7	0.75	0.68	-32.04
2,350.0	0.83	279.59	2,349.8	13.2	-8.9	-12.7	0.76	0.72	19.08
2,375.0	0.70	303.62	2,374.8	13.3	-9.2	-12.8	1.37	-0.52	96.12
2,400.0	0.49	317.90	2,399.8	13.5	-9.4	-13.0	1.02	-0.84	57.12
2,425.0	0.48	281.91	2,424.8	13.6	-9.6	-13.1	1.20	-0.04	-143.96
2,450.0	0.67	286.02	2,449.8	13.6	-9.8	-13.1	0.78	0.76	16.44
2,475.0	0.66	309.76	2,474.8	13.8	-10.1	-13.2	1.09	-0.04	94.96
2,500.0	0.43	331.42	2,499.8	13.9	-10.2	-13.4	1.22	-0.92	86.64
2,525.0	0.34	317.90	2,524.8	14.1	-10.3	-13.5	0.51	-0.36	-54.08
2,550.0	0.51	329.32	2,549.8	14.2	-10.4	-13.7	0.76	0.68	45.68
2,575.0	0.33	2.91	2,574.8	14.4	-10.5	-13.8	1.19	-0.72	134.36

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2,600.0	0.30	316.60	2,599.8	14.5	-10.5	-13.9	1.00	-0.12	-185.24
2,625.0	0.54	343.59	2,624.8	14.7	-10.6	-14.1	1.22	0.96	107.96
2,650.0	0.48	3.69	2,649.8	14.9	-10.6	-14.3	0.75	-0.24	80.40
2,675.0	0.47	14.37	2,674.8	15.1	-10.6	-14.5	0.36	-0.04	42.72
2,700.0	0.15	51.96	2,699.8	15.2	-10.5	-14.6	1.45	-1.28	150.36
2,725.0	0.28	332.50	2,724.8	15.3	-10.5	-14.7	1.17	0.52	-317.84
2,750.0	0.62	17.60	2,749.8	15.5	-10.5	-14.9	1.87	1.36	180.40
2,775.0	0.60	26.94	2,774.8	15.7	-10.4	-15.2	0.41	-0.08	37.36
2,800.0	0.31	41.02	2,799.8	15.9	-10.3	-15.3	1.23	-1.16	56.32
2,825.0	0.54	22.86	2,824.8	16.0	-10.2	-15.5	1.06	0.92	-72.64
2,850.0	0.75	43.79	2,849.8	16.3	-10.1	-15.7	1.25	0.84	83.72
2,875.0	0.76	43.31	2,874.8	16.5	-9.9	-16.0	0.05	0.04	-1.92
2,900.0	0.76	41.64	2,899.8	16.8	-9.6	-16.2	0.09	0.00	-6.68
2,925.0	0.77	37.53	2,924.8	17.0	-9.4	-16.5	0.22	0.04	-16.44
2,950.0	0.62	38.24	2,949.8	17.3	-9.2	-16.7	0.60	-0.60	2.84
2,975.0	0.59	17.09	2,974.8	17.5	-9.1	-17.0	0.90	-0.12	-84.60
3,000.0	0.80	27.65	2,999.8	17.8	-9.0	-17.3	0.98	0.84	42.24
3,025.0	0.66	43.06	3,024.8	18.0	-8.8	-17.5	0.96	-0.56	61.64
3,050.0	0.57	33.16	3,049.8	18.2	-8.6	-17.8	0.56	-0.36	-39.60
3,075.0	0.65	14.48	3,074.8	18.5	-8.5	-18.0	0.85	0.32	-74.72
3,100.0	0.64	28.91	3,099.8	18.7	-8.4	-18.3	0.65	-0.04	57.72
3,125.0	0.54	24.92	3,124.8	19.0	-8.3	-18.5	0.43	-0.40	-15.96
3,150.0	0.73	16.04	3,149.8	19.2	-8.2	-18.8	0.85	0.76	-35.52
3,175.0	0.87	37.89	3,174.8	19.5	-8.1	-19.1	1.33	0.56	87.40
3,200.0	1.15	41.29	3,199.8	19.9	-7.8	-19.4	1.14	1.12	13.60
3,225.0	1.09	51.64	3,224.8	20.2	-7.4	-19.8	0.84	-0.24	41.40
3,250.0	1.06	36.47	3,249.8	20.5	-7.1	-20.1	1.14	-0.12	-60.68
3,275.0	1.13	39.12	3,274.8	20.9	-6.8	-20.5	0.35	0.28	10.60
3,300.0	1.46	44.29	3,299.8	21.3	-6.4	-21.0	1.40	1.32	20.68
3,325.0	1.36	44.44	3,324.8	21.8	-6.0	-21.4	0.40	-0.40	0.60
3,350.0	1.32	40.69	3,349.7	22.2	-5.6	-21.9	0.39	-0.16	-15.00
3,375.0	1.38	41.50	3,374.7	22.6	-5.2	-22.3	0.25	0.24	3.24
3,400.0	1.26	40.30	3,399.7	23.1	-4.9	-22.8	0.49	-0.48	-4.80
3,425.0	1.40	29.33	3,424.7	23.6	-4.5	-23.3	1.16	0.56	-43.88
3,450.0	1.76	10.06	3,449.7	24.2	-4.3	-23.9	2.55	1.44	-77.08
3,475.0	1.69	16.31	3,474.7	24.9	-4.1	-24.7	0.80	-0.28	25.00
3,500.0	1.53	20.62	3,499.7	25.6	-3.9	-25.4	0.80	-0.64	17.24
3,525.0	1.64	14.25	3,524.7	26.3	-3.7	-26.0	0.83	0.44	-25.48
3,550.0	1.86	24.06	3,549.7	27.0	-3.5	-26.8	1.48	0.88	39.24
3,575.0	1.88	21.86	3,574.7	27.7	-3.1	-27.5	0.30	0.08	-8.80
3,600.0	2.13	26.58	3,599.6	28.5	-2.8	-28.3	1.20	1.00	18.88
3,625.0	1.93	27.95	3,624.6	29.3	-2.4	-29.1	0.82	-0.80	5.48
3,650.0	2.17	23.21	3,649.6	30.1	-2.0	-30.0	1.17	0.96	-18.96
3,675.0	2.03	31.20	3,674.6	30.9	-1.6	-30.8	1.30	-0.56	31.96

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLEND FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLEND FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
3,700.0	1.82	22.10	3,699.6	31.7	-1.2	-31.6	1.48	-0.84	-36.40
3,725.0	1.33	340.52	3,724.6	32.3	-1.1	-32.2	4.83	-1.96	-166.32
3,750.0	1.38	318.34	3,749.6	32.8	-1.4	-32.7	2.09	0.20	-88.72
3,775.0	1.43	307.22	3,774.6	33.2	-1.9	-33.1	1.11	0.20	-44.48
3,800.0	1.62	300.67	3,799.5	33.6	-2.4	-33.4	1.03	0.76	-26.20
3,825.0	1.48	304.72	3,824.5	34.0	-3.0	-33.8	0.71	-0.56	16.20
3,850.0	1.32	306.25	3,849.5	34.3	-3.5	-34.1	0.66	-0.64	6.12
3,875.0	1.37	292.91	3,874.5	34.6	-4.0	-34.3	1.27	0.20	-53.36
3,900.0	1.29	298.68	3,899.5	34.9	-4.5	-34.6	0.62	-0.32	23.08
3,925.0	1.28	296.09	3,924.5	35.1	-5.0	-34.8	0.24	-0.04	-10.36
3,950.0	1.40	287.96	3,949.5	35.3	-5.6	-35.0	0.90	0.48	-32.52
3,975.0	1.50	296.75	3,974.5	35.6	-6.2	-35.2	0.97	0.40	35.16
4,000.0	1.41	296.77	3,999.5	35.9	-6.7	-35.5	0.36	-0.36	0.08
4,025.0	1.38	296.43	4,024.5	36.1	-7.3	-35.7	0.12	-0.12	-1.36
4,050.0	1.29	288.31	4,049.5	36.3	-7.8	-35.9	0.84	-0.36	-32.48
4,075.0	1.53	284.92	4,074.5	36.5	-8.4	-36.0	1.02	0.96	-13.56
4,100.0	1.51	292.94	4,099.5	36.7	-9.0	-36.2	0.85	-0.08	32.08
4,125.0	1.45	291.82	4,124.5	37.0	-9.6	-36.4	0.27	-0.24	-4.48
4,150.0	1.38	293.69	4,149.4	37.2	-10.2	-36.6	0.34	-0.28	7.48
4,175.0	1.60	286.80	4,174.4	37.4	-10.8	-36.8	1.13	0.88	-27.56
4,200.0	1.38	291.43	4,199.4	37.7	-11.4	-37.0	1.00	-0.88	18.52
4,225.0	1.16	284.45	4,224.4	37.8	-11.9	-37.1	1.07	-0.88	-27.92
4,250.0	1.23	292.99	4,249.4	38.0	-12.4	-37.3	0.76	0.28	34.16
4,275.0	0.56	293.47	4,274.4	38.1	-12.8	-37.4	2.68	-2.68	1.92
4,300.0	0.36	133.41	4,299.4	38.1	-12.8	-37.4	3.63	-0.80	-640.24
4,325.0	0.52	159.64	4,324.4	38.0	-12.7	-37.3	1.01	0.64	104.92
4,350.0	0.41	143.83	4,349.4	37.8	-12.7	-37.1	0.67	-0.44	-63.24
4,375.0	0.59	125.49	4,374.4	37.7	-12.5	-37.0	0.95	0.72	-73.36
4,400.0	0.70	136.30	4,399.4	37.5	-12.3	-36.8	0.65	0.44	43.24
4,425.0	0.64	132.97	4,424.4	37.3	-12.1	-36.6	0.29	-0.24	-13.32
4,450.0	0.58	114.41	4,449.4	37.1	-11.9	-36.4	0.82	-0.24	-74.24
4,475.0	0.49	96.97	4,474.4	37.1	-11.6	-36.4	0.74	-0.36	-69.76
4,500.0	0.61	78.38	4,499.4	37.1	-11.4	-36.4	0.85	0.48	-74.36
4,525.0	0.86	75.69	4,524.4	37.1	-11.1	-36.5	1.01	1.00	-10.76
4,550.0	1.19	81.95	4,549.4	37.2	-10.7	-36.6	1.39	1.32	25.04
4,575.0	1.51	81.86	4,574.4	37.3	-10.1	-36.7	1.28	1.28	-0.36
4,600.0	2.03	88.23	4,599.4	37.4	-9.3	-36.8	2.22	2.08	25.48
4,625.0	2.33	88.98	4,624.4	37.4	-8.3	-36.9	1.21	1.20	3.00
4,650.0	2.27	92.96	4,649.3	37.4	-7.3	-36.9	0.68	-0.24	15.92
4,675.0	2.17	87.48	4,674.3	37.4	-6.4	-37.0	0.94	-0.40	-21.92
4,700.0	2.46	89.34	4,699.3	37.4	-5.4	-37.1	1.20	1.16	7.44
4,725.0	2.45	94.93	4,724.3	37.4	-4.3	-37.1	0.96	-0.04	22.36
4,750.0	2.15	92.39	4,749.3	37.3	-3.3	-37.1	1.27	-1.20	-10.16

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLENDE FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLENDE FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
4,775.0	2.36	86.10	4,774.2	37.3	-2.3	-37.1	1.30	0.84	-25.16
4,800.0	2.55	88.18	4,799.2	37.4	-1.2	-37.2	0.84	0.76	8.32
4,825.0	2.39	90.83	4,824.2	37.4	-0.2	-37.3	0.79	-0.64	10.60
4,850.0	2.18	89.67	4,849.2	37.4	0.8	-37.4	0.86	-0.84	-4.64
4,875.0	2.49	83.86	4,874.2	37.4	1.8	-37.5	1.56	1.24	-23.24
4,900.0	2.75	86.95	4,899.1	37.5	3.0	-37.6	1.18	1.04	12.36
4,925.0	2.84	80.92	4,924.1	37.6	4.2	-37.8	1.23	0.36	-24.12
4,950.0	2.87	86.31	4,949.1	37.8	5.4	-38.0	1.08	0.12	21.56
4,975.0	2.98	88.11	4,974.0	37.8	6.7	-38.1	0.57	0.44	7.20
5,000.0	3.17	87.78	4,999.0	37.9	8.0	-38.3	0.76	0.76	-1.32
5,025.0	2.90	85.94	5,024.0	38.0	9.4	-38.4	1.15	-1.08	-7.36
5,050.0	2.41	90.44	5,048.9	38.0	10.5	-38.5	2.13	-1.96	18.00
5,075.0	2.19	95.51	5,073.9	38.0	11.5	-38.5	1.20	-0.88	20.28
5,100.0	2.15	97.01	5,098.9	37.9	12.5	-38.5	0.28	-0.16	6.00
5,125.0	2.37	94.46	5,123.9	37.8	13.4	-38.4	0.97	0.88	-10.20
5,150.0	2.36	98.04	5,148.9	37.6	14.5	-38.3	0.59	-0.04	14.32
5,175.0	2.30	96.13	5,173.8	37.5	15.5	-38.3	0.39	-0.24	-7.64
5,200.0	2.19	96.89	5,198.8	37.4	16.4	-38.2	0.46	-0.44	3.04
5,225.0	1.69	90.29	5,223.8	37.3	17.3	-38.2	2.19	-2.00	-26.40
5,250.0	0.90	50.58	5,248.8	37.5	17.8	-38.3	4.61	-3.16	-158.84
5,275.0	0.77	19.09	5,273.8	37.8	18.0	-38.6	1.88	-0.52	-125.96
5,300.0	0.84	9.69	5,298.8	38.1	18.1	-39.0	0.60	0.28	-37.60
5,325.0	0.71	8.51	5,323.8	38.4	18.2	-39.3	0.52	-0.52	-4.72
5,350.0	0.78	356.50	5,348.8	38.7	18.2	-39.6	0.68	0.28	-48.04
5,375.0	1.19	311.76	5,373.8	39.1	18.0	-40.0	3.36	1.64	-178.96
5,400.0	2.15	314.21	5,398.8	39.6	17.4	-40.4	3.85	3.84	9.80
5,425.0	3.12	304.85	5,423.7	40.3	16.5	-41.1	4.23	3.88	-37.44
5,450.0	3.91	307.88	5,448.7	41.2	15.3	-42.0	3.25	3.16	12.12
5,475.0	3.65	307.01	5,473.6	42.2	14.0	-42.9	1.06	-1.04	-3.48
5,500.0	3.98	304.06	5,498.6	43.2	12.6	-43.8	1.54	1.32	-11.80
5,525.0	3.90	308.19	5,523.5	44.2	11.3	-44.7	1.18	-0.32	16.52
5,550.0	3.71	307.97	5,548.5	45.2	10.0	-45.7	0.76	-0.76	-0.88
5,575.0	3.90	304.18	5,573.4	46.2	8.6	-46.6	1.26	0.76	-15.16
5,600.0	3.93	308.60	5,598.4	47.2	7.2	-47.5	1.21	0.12	17.68
5,625.0	3.83	307.60	5,623.3	48.3	5.9	-48.5	0.48	-0.40	-4.00
5,650.0	3.81	305.57	5,648.2	49.2	4.6	-49.4	0.55	-0.08	-8.12
5,675.0	4.05	306.69	5,673.2	50.3	3.2	-50.4	1.01	0.96	4.48
5,700.0	3.95	308.53	5,698.1	51.3	1.8	-51.3	0.65	-0.40	7.36
5,725.0	4.28	303.19	5,723.1	52.4	0.4	-52.3	2.02	1.32	-21.36
5,750.0	4.85	303.69	5,748.0	53.5	-1.3	-53.3	2.29	2.28	2.00
5,775.0	4.86	302.43	5,772.9	54.6	-3.1	-54.4	0.43	0.04	-5.04
5,800.0	4.81	303.04	5,797.8	55.8	-4.9	-55.4	0.29	-0.20	2.44
5,825.0	4.87	300.85	5,822.7	56.9	-6.6	-56.4	0.78	0.24	-8.76

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLENDE FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLENDE FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
5,850.0	5.07	302.17	5,847.6	58.0	-8.5	-57.5	0.92	0.80	5.28
5,875.0	4.82	302.57	5,872.5	59.2	-10.3	-58.5	1.01	-1.00	1.60
5,900.0	5.14	300.86	5,897.4	60.3	-12.2	-59.6	1.41	1.28	-6.84
5,925.0	4.87	302.00	5,922.3	61.4	-14.0	-60.6	1.15	-1.08	4.56
5,950.0	4.60	300.34	5,947.3	62.5	-15.8	-61.6	1.21	-1.08	-6.64
5,975.0	4.53	298.42	5,972.2	63.5	-17.5	-62.5	0.67	-0.28	-7.68
6,000.0	4.76	300.46	5,997.1	64.5	-19.3	-63.4	1.13	0.92	8.16
6,025.0	4.60	301.34	6,022.0	65.5	-21.0	-64.3	0.70	-0.64	3.52
6,050.0	4.58	301.33	6,046.9	66.6	-22.7	-65.3	0.08	-0.08	-0.04
6,075.0	4.47	300.72	6,071.9	67.6	-24.4	-66.2	0.48	-0.44	-2.44
6,100.0	4.52	300.08	6,096.8	68.6	-26.1	-67.1	0.28	0.20	-2.56
6,125.0	4.51	299.87	6,121.7	69.6	-27.8	-68.0	0.08	-0.04	-0.84
6,150.0	4.35	299.83	6,146.6	70.5	-29.5	-68.9	0.64	-0.64	-0.16
6,175.0	4.31	300.34	6,171.5	71.5	-31.1	-69.7	0.22	-0.16	2.04
6,200.0	4.36	300.11	6,196.5	72.4	-32.8	-70.6	0.21	0.20	-0.92
6,225.0	4.27	299.17	6,221.4	73.3	-34.4	-71.4	0.46	-0.36	-3.76
6,250.0	4.17	298.49	6,246.3	74.2	-36.0	-72.2	0.45	-0.40	-2.72
6,275.0	4.12	295.69	6,271.3	75.1	-37.6	-73.0	0.83	-0.20	-11.20
6,300.0	4.26	294.53	6,296.2	75.8	-39.3	-73.7	0.65	0.56	-4.64
6,325.0	4.19	297.39	6,321.1	76.6	-40.9	-74.4	0.89	-0.28	11.44
6,350.0	4.09	297.33	6,346.1	77.5	-42.5	-75.1	0.40	-0.40	-0.24
6,375.0	4.31	294.22	6,371.0	78.3	-44.2	-75.8	1.27	0.88	-12.44
6,400.0	4.15	296.60	6,395.9	79.0	-45.8	-76.5	0.95	-0.64	9.52
6,425.0	4.07	295.09	6,420.9	79.8	-47.5	-77.2	0.54	-0.32	-6.04
6,450.0	4.35	293.01	6,445.8	80.6	-49.1	-77.9	1.28	1.12	-8.32
6,475.0	4.09	295.90	6,470.7	81.3	-50.8	-78.6	1.34	-1.04	11.56
6,500.0	4.24	292.84	6,495.7	82.1	-52.5	-79.2	1.07	0.60	-12.24
6,525.0	4.06	294.21	6,520.6	82.8	-54.1	-79.9	0.82	-0.72	5.48
6,550.0	4.12	291.27	6,545.5	83.5	-55.8	-80.5	0.87	0.24	-11.76
6,575.0	3.94	292.85	6,570.5	84.2	-57.4	-81.0	0.85	-0.72	6.32
6,600.0	4.18	289.81	6,595.4	84.8	-59.0	-81.6	1.29	0.96	-12.16
6,625.0	4.12	292.01	6,620.4	85.4	-60.7	-82.1	0.68	-0.24	8.80
6,650.0	3.85	290.55	6,645.3	86.1	-62.3	-82.7	1.15	-1.08	-5.84
6,675.0	4.02	292.36	6,670.2	86.7	-63.9	-83.2	0.84	0.68	7.24
6,700.0	4.06	289.65	6,695.2	87.3	-65.6	-83.8	0.78	0.16	-10.84
6,725.0	4.06	292.55	6,720.1	88.0	-67.2	-84.3	0.82	0.00	11.60
6,750.0	4.30	290.23	6,745.0	88.6	-68.9	-84.9	1.17	0.96	-9.28
6,775.0	4.42	289.30	6,770.0	89.3	-70.7	-85.5	0.56	0.48	-3.72
6,800.0	4.43	287.33	6,794.9	89.9	-72.6	-86.0	0.61	0.04	-7.88
6,825.0	4.69	288.27	6,819.8	90.5	-74.4	-86.5	1.08	1.04	3.76
6,850.0	4.61	289.65	6,844.7	91.1	-76.4	-87.0	0.55	-0.32	5.52
6,875.0	4.49	287.86	6,869.7	91.8	-78.2	-87.6	0.74	-0.48	-7.16
6,900.0	4.47	288.99	6,894.6	92.4	-80.1	-88.1	0.36	-0.08	4.52
6,925.0	4.62	288.60	6,919.5	93.0	-82.0	-88.6	0.61	0.60	-1.56

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLENDE FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLENDE FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
6,950.0	4.52	288.25	6,944.4	93.7	-83.9	-89.2	0.42	-0.40	-1.40
6,975.0	4.55	287.72	6,969.3	94.3	-85.7	-89.7	0.21	0.12	-2.12
7,000.0	4.54	287.89	6,994.3	94.9	-87.6	-90.2	0.07	-0.04	0.68
7,025.0	4.94	288.87	7,019.2	95.5	-89.6	-90.7	1.63	1.60	3.92
7,050.0	4.92	288.30	7,044.1	96.2	-91.6	-91.3	0.21	-0.08	-2.28
7,075.0	4.83	289.68	7,069.0	96.9	-93.6	-91.9	0.59	-0.36	5.52
7,100.0	4.75	288.92	7,093.9	97.6	-95.6	-92.5	0.41	-0.32	-3.04
7,125.0	4.68	288.57	7,118.8	98.3	-97.5	-93.0	0.30	-0.28	-1.40
7,150.0	4.59	290.39	7,143.7	98.9	-99.5	-93.6	0.69	-0.36	7.28
7,175.0	4.58	289.26	7,168.7	99.6	-101.3	-94.2	0.36	-0.04	-4.52
7,200.0	4.56	289.99	7,193.6	100.3	-103.2	-94.7	0.25	-0.08	2.92
7,225.0	4.63	290.96	7,218.5	101.0	-105.1	-95.3	0.42	0.28	3.88
7,250.0	4.58	291.96	7,243.4	101.7	-107.0	-96.0	0.38	-0.20	4.00
7,275.0	4.61	290.10	7,268.3	102.4	-108.8	-96.6	0.61	0.12	-7.44
7,300.0	4.81	290.59	7,293.3	103.2	-110.7	-97.2	0.82	0.80	1.96
7,325.0	4.69	292.82	7,318.2	103.9	-112.7	-97.9	0.88	-0.48	8.92
7,350.0	4.47	291.22	7,343.1	104.7	-114.5	-98.5	1.02	-0.88	-6.40
7,375.0	4.60	291.03	7,368.0	105.4	-116.4	-99.1	0.52	0.52	-0.76
7,400.0	4.32	292.68	7,392.9	106.1	-118.2	-99.8	1.23	-1.12	6.60
7,425.0	4.59	291.16	7,417.9	106.8	-120.0	-100.4	1.18	1.08	-6.08
7,450.0	4.47	293.75	7,442.8	107.6	-121.8	-101.1	0.95	-0.48	10.36
7,475.0	4.57	290.85	7,467.7	108.3	-123.6	-101.7	1.00	0.40	-11.60
7,500.0	4.41	293.15	7,492.6	109.1	-125.4	-102.3	0.96	-0.64	9.20
7,525.0	4.99	298.69	7,517.5	110.0	-127.3	-103.1	2.94	2.32	22.16
7,550.0	5.05	302.39	7,542.4	111.1	-129.2	-104.2	1.32	0.24	14.80
7,575.0	5.44	302.59	7,567.3	112.3	-131.1	-105.3	1.56	1.56	0.80
7,600.0	5.22	301.19	7,592.2	113.5	-133.1	-106.4	1.02	-0.88	-5.60
7,625.0	5.37	302.83	7,617.1	114.7	-135.0	-107.5	0.85	0.60	6.56
7,650.0	5.30	300.72	7,642.0	116.0	-137.0	-108.6	0.83	-0.28	-8.44
7,675.0	5.27	303.98	7,666.9	117.2	-138.9	-109.8	1.21	-0.12	13.04
7,700.0	5.10	303.17	7,691.8	118.5	-140.8	-110.9	0.74	-0.68	-3.24
7,725.0	4.85	302.10	7,716.7	119.6	-142.6	-112.0	1.07	-1.00	-4.28
7,750.0	4.80	300.82	7,741.6	120.7	-144.4	-113.0	0.47	-0.20	-5.12
7,775.0	4.74	300.09	7,766.5	121.8	-146.2	-114.0	0.34	-0.24	-2.92
7,800.0	4.61	299.49	7,791.5	122.8	-148.0	-114.9	0.56	-0.52	-2.40
7,825.0	4.69	299.79	7,816.4	123.8	-149.7	-115.8	0.33	0.32	1.20
7,850.0	4.52	299.62	7,841.3	124.8	-151.5	-116.7	0.68	-0.68	-0.68
7,875.0	4.51	297.77	7,866.2	125.7	-153.2	-117.5	0.58	-0.04	-7.40
7,900.0	4.48	299.89	7,891.1	126.7	-154.9	-118.4	0.68	-0.12	8.48
7,925.0	4.43	296.15	7,916.1	127.6	-156.6	-119.2	1.18	-0.20	-14.96
7,950.0	4.37	299.50	7,941.0	128.5	-158.3	-120.0	1.06	-0.24	13.40
7,975.0	4.33	295.39	7,965.9	129.4	-160.0	-120.8	1.26	-0.16	-16.44
8,000.0	4.13	296.19	7,990.9	130.2	-161.7	-121.5	0.83	-0.80	3.20

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLENDE FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLENDE FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
8,025.0	3.86	292.63	8,015.8	130.9	-163.3	-122.1	1.47	-1.08	-14.24
8,050.0	3.56	295.03	8,040.7	131.5	-164.8	-122.7	1.35	-1.20	9.60
8,075.0	3.38	292.79	8,065.7	132.1	-166.1	-123.3	0.90	-0.72	-8.96
8,100.0	3.39	288.52	8,090.7	132.7	-167.5	-123.7	1.01	0.04	-17.08
8,125.0	3.28	291.33	8,115.6	133.2	-168.9	-124.1	0.79	-0.44	11.24
8,150.0	2.98	291.36	8,140.6	133.7	-170.2	-124.6	1.20	-1.20	0.12
8,175.0	2.93	290.39	8,165.5	134.1	-171.4	-125.0	0.28	-0.20	-3.88
8,200.0	2.95	292.28	8,190.5	134.6	-172.6	-125.4	0.40	0.08	7.56
8,225.0	2.72	286.41	8,215.5	135.0	-173.7	-125.7	1.48	-0.92	-23.48
8,250.0	3.05	261.10	8,240.4	135.1	-174.9	-125.7	5.22	1.32	-101.24
8,275.0	3.99	244.85	8,265.4	134.6	-176.4	-125.2	5.45	3.76	-65.00
8,300.0	4.31	241.03	8,290.3	133.8	-178.0	-124.3	1.69	1.28	-15.28
8,325.0	4.46	240.01	8,315.3	132.8	-179.7	-123.2	0.68	0.60	-4.08
8,350.0	4.55	242.46	8,340.2	131.9	-181.4	-122.2	0.85	0.36	9.80
8,375.0	4.41	243.18	8,365.1	131.0	-183.1	-121.2	0.60	-0.56	2.88
8,400.0	4.46	239.81	8,390.0	130.1	-184.8	-120.2	1.06	0.20	-13.48
8,425.0	4.76	242.11	8,414.9	129.1	-186.6	-119.1	1.41	1.20	9.20
8,450.0	5.72	256.24	8,439.8	128.3	-188.7	-118.2	6.41	3.84	56.52
8,475.0	5.91	257.99	8,464.7	127.7	-191.2	-117.6	1.04	0.76	7.00
8,500.0	6.12	260.72	8,489.6	127.3	-193.7	-116.9	1.42	0.84	10.92
8,525.0	5.94	270.63	8,514.4	127.1	-196.4	-116.6	4.22	-0.72	39.64
8,550.0	6.02	278.27	8,539.3	127.3	-198.9	-116.7	3.20	0.32	30.56
8,575.0	5.96	277.96	8,564.2	127.6	-201.5	-116.9	0.27	-0.24	-1.24
8,600.0	5.87	277.31	8,589.0	128.0	-204.1	-117.1	0.45	-0.36	-2.60
8,625.0	5.69	277.79	8,613.9	128.3	-206.6	-117.3	0.75	-0.72	1.92
8,650.0	5.45	277.47	8,638.8	128.6	-209.0	-117.5	0.97	-0.96	-1.28
8,675.0	5.30	277.16	8,663.7	128.9	-211.3	-117.7	0.61	-0.60	-1.24
8,700.0	5.11	276.81	8,688.6	129.2	-213.6	-117.8	0.77	-0.76	-1.40
8,725.0	4.90	276.18	8,713.5	129.4	-215.7	-118.0	0.87	-0.84	-2.52
8,750.0	4.66	277.33	8,738.4	129.7	-217.8	-118.1	1.03	-0.96	4.60
8,775.0	4.64	277.85	8,763.3	130.0	-219.8	-118.3	0.19	-0.08	2.08
8,800.0	4.75	286.92	8,788.2	130.4	-221.8	-118.6	3.00	0.44	36.28
8,825.0	4.89	304.29	8,813.1	131.3	-223.7	-119.4	5.84	0.56	69.48
8,850.0	5.69	316.91	8,838.0	132.8	-225.4	-120.8	5.63	3.20	50.48
8,875.0	5.69	317.98	8,862.9	134.6	-227.1	-122.6	0.42	0.00	4.28
8,900.0	5.69	316.17	8,887.8	136.4	-228.8	-124.3	0.72	0.00	-7.24
8,925.0	5.45	319.18	8,912.7	138.2	-230.4	-126.0	1.51	-0.96	12.04
8,950.0	5.28	319.14	8,937.6	140.0	-231.9	-127.7	0.68	-0.68	-0.16
8,975.0	5.17	318.56	8,962.5	141.7	-233.4	-129.3	0.49	-0.44	-2.32
9,000.0	5.32	316.59	8,987.4	143.4	-235.0	-130.9	0.94	0.60	-7.88
9,025.0	5.28	319.40	9,012.2	145.1	-236.5	-132.5	1.05	-0.16	11.24
9,050.0	5.19	320.48	9,037.1	146.9	-238.0	-134.2	0.53	-0.36	4.32
9,075.0	5.35	320.15	9,062.0	148.6	-239.4	-135.9	0.65	0.64	-1.32

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLENDE FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLENDE FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
9,100.0	5.77	319.69	9,086.9	150.5	-241.0	-137.7	1.69	1.68	-1.84
9,125.0	6.85	325.43	9,111.8	152.7	-242.7	-139.8	5.00	4.32	22.96
9,150.0	6.77	324.41	9,136.6	155.1	-244.4	-142.1	0.58	-0.32	-4.08
9,175.0	7.05	325.41	9,161.4	157.6	-246.1	-144.5	1.22	1.12	4.00
9,200.0	6.62	326.43	9,186.2	160.0	-247.8	-146.8	1.79	-1.72	4.08
9,225.0	6.27	326.31	9,211.1	162.4	-249.3	-149.1	1.40	-1.40	-0.48
9,250.0	6.01	326.41	9,235.9	164.6	-250.8	-151.2	1.04	-1.04	0.40
9,275.0	5.81	326.30	9,260.8	166.7	-252.2	-153.3	0.80	-0.80	-0.44
9,300.0	5.65	326.22	9,285.7	168.8	-253.6	-155.3	0.64	-0.64	-0.32
9,325.0	5.22	326.03	9,310.6	170.8	-254.9	-157.2	1.72	-1.72	-0.76
9,350.0	4.87	327.70	9,335.5	172.6	-256.1	-159.0	1.52	-1.40	6.68
9,375.0	4.57	326.80	9,360.4	174.3	-257.2	-160.6	1.24	-1.20	-3.60
9,400.0	4.51	326.93	9,385.3	176.0	-258.3	-162.2	0.24	-0.24	0.52
9,425.0	4.12	324.57	9,410.2	177.6	-259.4	-163.7	1.71	-1.56	-9.44
9,450.0	4.29	325.58	9,435.2	179.1	-260.4	-165.2	0.74	0.68	4.04
9,475.0	4.84	325.04	9,460.1	180.7	-261.6	-166.8	2.21	2.20	-2.16
9,500.0	5.54	322.73	9,485.0	182.5	-262.9	-168.5	2.92	2.80	-9.24
9,525.0	5.69	321.30	9,509.9	184.4	-264.4	-170.3	0.82	0.60	-5.72
9,550.0	5.50	321.66	9,534.7	186.4	-265.9	-172.2	0.77	-0.76	1.44
9,575.0	5.67	323.09	9,559.6	188.3	-267.4	-174.0	0.88	0.68	5.72
9,600.0	5.45	322.85	9,584.5	190.2	-268.9	-175.9	0.88	-0.88	-0.96
9,625.0	5.58	321.02	9,609.4	192.1	-270.3	-177.7	0.87	0.52	-7.32
9,650.0	5.55	322.53	9,634.3	194.0	-271.8	-179.5	0.60	-0.12	6.04
9,675.0	5.32	321.39	9,659.2	195.9	-273.3	-181.3	1.02	-0.92	-4.56
9,700.0	5.18	319.96	9,684.1	197.6	-274.7	-183.0	0.77	-0.56	-5.72
9,725.0	5.05	319.06	9,709.0	199.3	-276.2	-184.6	0.61	-0.52	-3.60
9,750.0	5.00	318.37	9,733.9	201.0	-277.6	-186.2	0.31	-0.20	-2.76
9,775.0	4.88	317.23	9,758.8	202.6	-279.1	-187.7	0.62	-0.48	-4.56
9,800.0	4.70	315.21	9,783.7	204.1	-280.5	-189.1	0.99	-0.72	-8.08
9,825.0	4.75	314.40	9,808.6	205.5	-282.0	-190.5	0.33	0.20	-3.24
9,850.0	4.61	314.70	9,833.5	207.0	-283.4	-191.8	0.57	-0.56	1.20
9,875.0	4.46	313.49	9,858.4	208.3	-284.9	-193.1	0.71	-0.60	-4.84
9,900.0	4.32	312.55	9,883.4	209.6	-286.3	-194.4	0.63	-0.56	-3.76
9,925.0	4.45	311.83	9,908.3	210.9	-287.7	-195.6	0.56	0.52	-2.88
9,950.0	4.60	314.05	9,933.2	212.3	-289.1	-196.8	0.92	0.60	8.88
9,975.0	4.49	312.02	9,958.1	213.6	-290.6	-198.1	0.78	-0.44	-8.12
10,000.0	4.61	314.31	9,983.1	215.0	-292.0	-199.4	0.87	0.48	9.16
10,025.0	4.50	314.33	10,008.0	216.4	-293.4	-200.7	0.44	-0.44	0.08
10,050.0	4.55	313.20	10,032.9	217.7	-294.9	-202.0	0.41	0.20	-4.52
10,075.0	4.69	312.58	10,057.8	219.1	-296.3	-203.3	0.59	0.56	-2.48
10,100.0	4.53	311.59	10,082.7	220.5	-297.8	-204.6	0.71	-0.64	-3.96
10,125.0	4.49	314.77	10,107.7	221.8	-299.3	-205.8	1.01	-0.16	12.72
10,150.0	4.52	314.09	10,132.6	223.2	-300.7	-207.1	0.25	0.12	-2.72
10,175.0	4.26	316.34	10,157.5	224.5	-302.0	-208.4	1.25	-1.04	9.00

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLENDE FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLENDE FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
10,200.0	4.34	314.89	10,182.4	225.9	-303.3	-209.7	0.54	0.32	-5.80
10,225.0	4.12	316.30	10,207.4	227.2	-304.6	-210.9	0.97	-0.88	5.64
10,250.0	4.29	318.54	10,232.3	228.5	-305.9	-212.2	0.95	0.68	8.96
10,275.0	3.95	322.30	10,257.2	229.9	-307.0	-213.5	1.74	-1.36	15.04
10,300.0	3.87	323.35	10,282.2	231.3	-308.0	-214.8	0.43	-0.32	4.20
10,325.0	4.00	331.05	10,307.1	232.7	-309.0	-216.2	2.17	0.52	30.80
10,350.0	3.96	334.04	10,332.1	234.3	-309.8	-217.7	0.85	-0.16	11.96
10,375.0	4.13	337.19	10,357.0	235.9	-310.5	-219.3	1.12	0.68	12.60
10,400.0	4.06	342.04	10,381.9	237.5	-311.1	-220.9	1.41	-0.28	19.40
10,425.0	3.78	345.76	10,406.9	239.2	-311.6	-222.5	1.51	-1.12	14.88
10,450.0	3.77	348.06	10,431.8	240.8	-311.9	-224.1	0.61	-0.04	9.20
10,475.0	3.72	348.75	10,456.8	242.4	-312.3	-225.7	0.27	-0.20	2.76
10,500.0	3.60	348.02	10,481.7	243.9	-312.6	-227.2	0.51	-0.48	-2.92
10,525.0	3.53	348.60	10,506.7	245.5	-312.9	-228.7	0.31	-0.28	2.32
10,550.0	3.51	349.80	10,531.6	247.0	-313.2	-230.2	0.31	-0.08	4.80
10,575.0	3.48	346.93	10,556.6	248.5	-313.5	-231.7	0.71	-0.12	-11.48
10,600.0	3.54	342.85	10,581.5	249.9	-313.9	-233.2	1.03	0.24	-16.32
10,625.0	3.78	331.47	10,606.5	251.4	-314.5	-234.6	3.05	0.96	-45.52
10,650.0	3.90	330.15	10,631.4	252.9	-315.3	-236.0	0.60	0.48	-5.28
10,675.0	3.86	330.68	10,656.4	254.3	-316.2	-237.4	0.21	-0.16	2.12
10,700.0	3.86	329.44	10,681.3	255.8	-317.0	-238.8	0.33	0.00	-4.96
10,725.0	3.65	330.64	10,706.3	257.2	-317.8	-240.2	0.90	-0.84	4.80
10,750.0	3.21	332.39	10,731.2	258.5	-318.6	-241.5	1.81	-1.76	7.00
10,775.0	3.04	331.17	10,756.2	259.7	-319.2	-242.7	0.73	-0.68	-4.88
10,800.0	2.76	333.32	10,781.1	260.8	-319.8	-243.7	1.20	-1.12	8.60
10,825.0	2.58	334.96	10,806.1	261.9	-320.3	-244.8	0.78	-0.72	6.56
10,850.0	2.47	334.04	10,831.1	262.9	-320.8	-245.7	0.47	-0.44	-3.68
10,875.0	2.47	332.90	10,856.1	263.8	-321.3	-246.7	0.20	0.00	-4.56
10,900.0	2.31	335.21	10,881.0	264.8	-321.7	-247.6	0.75	-0.64	9.24
10,925.0	2.22	335.89	10,906.0	265.7	-322.1	-248.5	0.38	-0.36	2.72
10,950.0	2.12	337.71	10,931.0	266.6	-322.5	-249.3	0.49	-0.40	7.28
10,975.0	2.10	339.56	10,956.0	267.4	-322.8	-250.1	0.28	-0.08	7.40
11,000.0	2.13	341.72	10,981.0	268.3	-323.1	-251.0	0.34	0.12	8.64
11,025.0	2.15	348.22	11,006.0	269.2	-323.4	-251.9	0.97	0.08	26.00
11,050.0	2.12	354.65	11,030.9	270.1	-323.5	-252.8	0.97	-0.12	25.72
11,075.0	1.99	356.40	11,055.9	271.0	-323.6	-253.7	0.58	-0.52	7.00
11,100.0	1.86	0.18	11,080.9	271.8	-323.6	-254.5	0.73	-0.52	15.12
11,125.0	1.77	1.70	11,105.9	272.6	-323.6	-255.3	0.41	-0.36	6.08
11,150.0	1.82	10.47	11,130.9	273.4	-323.5	-256.1	1.12	0.20	35.08
11,175.0	2.16	14.06	11,155.9	274.2	-323.3	-256.9	1.45	1.36	14.36
11,200.0	2.68	16.03	11,180.8	275.3	-323.0	-258.0	2.11	2.08	7.88
11,225.0	3.06	16.41	11,205.8	276.5	-322.7	-259.2	1.52	1.52	1.52
11,250.0	3.41	18.59	11,230.8	277.8	-322.3	-260.6	1.48	1.40	8.72

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLEND FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLEND FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
11,275.0	3.70	17.90	11,255.7	279.3	-321.8	-262.1	1.17	1.16	-2.76
11,300.0	4.07	19.02	11,280.7	280.9	-321.3	-263.7	1.51	1.48	4.48
11,325.0	4.31	19.48	11,305.6	282.6	-320.6	-265.4	0.97	0.96	1.84
11,350.0	4.55	21.47	11,330.5	284.4	-320.0	-267.3	1.14	0.96	7.96
11,375.0	4.78	24.50	11,355.4	286.3	-319.2	-269.2	1.35	0.92	12.12
11,400.0	5.01	26.66	11,380.3	288.2	-318.3	-271.2	1.18	0.92	8.64
11,425.0	5.50	27.69	11,405.2	290.3	-317.2	-273.3	2.00	1.96	4.12
11,450.0	5.82	27.20	11,430.1	292.4	-316.1	-275.5	1.29	1.28	-1.96
11,475.0	5.99	27.78	11,455.0	294.7	-314.9	-277.8	0.72	0.68	2.32
11,500.0	6.17	27.33	11,479.8	297.1	-313.7	-280.2	0.74	0.72	-1.80
11,525.0	6.06	28.25	11,504.7	299.4	-312.4	-282.7	0.59	-0.44	3.68
11,550.0	6.14	30.01	11,529.6	301.7	-311.1	-285.0	0.81	0.32	7.04
11,575.0	5.91	30.94	11,554.4	304.0	-309.8	-287.4	1.00	-0.92	3.72
11,600.0	5.40	32.01	11,579.3	306.1	-308.5	-289.5	2.08	-2.04	4.28
11,625.0	5.05	33.21	11,604.2	308.0	-307.3	-291.5	1.47	-1.40	4.80
11,650.0	4.44	32.84	11,629.1	309.8	-306.2	-293.3	2.44	-2.44	-1.48
11,675.0	4.14	36.24	11,654.0	311.3	-305.1	-294.9	1.57	-1.20	13.60
11,700.0	4.13	38.76	11,679.0	312.7	-304.0	-296.4	0.73	-0.04	10.08
11,725.0	4.00	38.33	11,703.9	314.1	-302.9	-297.8	0.53	-0.52	-1.72
11,750.0	3.77	42.99	11,728.9	315.4	-301.8	-299.2	1.56	-0.92	18.64
11,755.0	3.73	43.99	11,733.8	315.6	-301.6	-299.4	1.53	-0.80	20.00
11,883.0	3.58	59.35	11,861.6	320.7	-295.2	-304.8	0.77	-0.12	12.00
11,915.0	3.46	106.61	11,893.5	320.9	-293.5	-305.1	8.82	-0.38	147.69
11,946.0	5.09	151.96	11,924.5	319.4	-291.9	-303.7	11.68	5.26	146.29
11,978.0	5.76	168.25	11,956.3	316.6	-290.9	-300.9	5.23	2.09	50.91
12,010.0	8.36	174.73	11,988.1	312.7	-290.4	-297.1	8.48	8.13	20.25
12,058.0	13.17	183.23	12,035.2	303.8	-290.4	-288.2	10.53	10.02	17.71
12,105.0	20.07	193.14	12,080.2	290.6	-292.5	-274.8	15.82	14.68	21.09
12,153.0	27.52	197.96	12,124.1	272.0	-297.8	-256.0	16.03	15.52	10.04
12,200.0	34.88	201.52	12,164.3	249.1	-306.1	-232.7	16.14	15.66	7.57
12,248.0	39.56	203.70	12,202.5	222.3	-317.3	-205.4	10.13	9.75	4.54
12,294.0	43.03	204.37	12,237.1	194.6	-329.6	-177.1	7.60	7.54	1.46
12,342.0	46.16	203.22	12,271.3	163.8	-343.2	-145.6	6.73	6.52	-2.40
12,389.0	49.26	200.69	12,302.9	131.5	-356.2	-112.7	7.70	6.60	-5.38
12,437.0	54.56	197.11	12,332.5	95.8	-368.4	-76.4	12.50	11.04	-7.46
12,484.0	59.78	193.13	12,358.0	57.7	-378.7	-37.8	13.19	11.11	-8.47
12,532.0	66.62	193.32	12,379.6	16.0	-388.5	4.4	14.25	14.25	0.40
12,579.0	73.26	192.34	12,395.7	-27.0	-398.2	47.8	14.26	14.13	-2.09
12,627.0	77.31	191.91	12,407.9	-72.4	-408.0	93.7	8.48	8.44	-0.90
12,674.0	79.80	190.58	12,417.2	-117.6	-417.0	139.3	5.98	5.30	-2.83
12,722.0	85.67	188.94	12,423.3	-164.5	-425.0	186.5	12.69	12.23	-3.42
12,768.0	89.88	188.42	12,425.1	-209.9	-432.0	232.2	9.22	9.15	-1.13
12,863.0	90.98	187.52	12,424.4	-304.0	-445.1	326.9	1.50	1.16	-0.95

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLENDE FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLENDE FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
12,958.0	91.04	186.01	12,422.7	-398.3	-456.3	421.7	1.59	0.06	-1.59
13,053.0	91.42	187.46	12,420.6	-492.6	-467.5	516.4	1.58	0.40	1.53
13,147.0	92.18	182.19	12,417.7	-586.2	-475.4	610.3	5.66	0.81	-5.61
13,242.0	89.63	178.36	12,416.2	-681.2	-475.8	705.2	4.84	-2.68	-4.03
13,336.0	89.56	177.59	12,416.9	-775.1	-472.5	798.8	0.82	-0.07	-0.82
13,431.0	87.39	176.66	12,419.4	-870.0	-467.7	893.3	2.48	-2.28	-0.98
13,526.0	85.75	174.54	12,425.1	-964.5	-460.5	987.3	2.82	-1.73	-2.23
13,620.0	88.85	177.99	12,429.5	-1,058.2	-454.4	1,080.5	4.93	3.30	3.67
13,715.0	89.28	178.40	12,431.0	-1,153.1	-451.4	1,175.2	0.63	0.45	0.43
13,810.0	88.73	177.41	12,432.7	-1,248.0	-447.9	1,269.8	1.19	-0.58	-1.04
13,905.0	90.88	180.58	12,433.0	-1,343.0	-446.2	1,364.5	4.03	2.26	3.34
14,000.0	90.14	176.71	12,432.2	-1,438.0	-444.0	1,459.2	4.15	-0.78	-4.07
14,094.0	89.44	175.07	12,432.5	-1,531.7	-437.2	1,552.5	1.90	-0.74	-1.74
14,188.0	88.28	178.43	12,434.4	-1,625.5	-431.9	1,645.9	3.78	-1.23	3.57
14,284.0	88.25	179.30	12,437.3	-1,721.5	-430.0	1,741.6	0.91	-0.03	0.91
14,378.0	90.11	182.86	12,438.6	-1,815.4	-431.8	1,835.5	4.27	1.98	3.79
14,473.0	89.42	181.93	12,439.0	-1,910.3	-435.8	1,930.5	1.22	-0.73	-0.98
14,567.0	91.33	180.87	12,438.4	-2,004.3	-438.1	2,024.5	2.32	2.03	-1.13
14,662.0	92.10	179.98	12,435.6	-2,099.3	-438.8	2,119.3	1.24	0.81	-0.94
14,757.0	93.02	180.30	12,431.3	-2,194.2	-439.0	2,214.1	1.03	0.97	0.34
14,851.0	93.35	179.33	12,426.1	-2,288.0	-438.7	2,307.8	1.09	0.35	-1.03
14,947.0	92.99	178.79	12,420.8	-2,383.8	-437.1	2,403.5	0.68	-0.38	-0.56
15,042.0	90.62	178.38	12,417.8	-2,478.8	-434.8	2,498.1	2.53	-2.49	-0.43
15,137.0	91.84	178.27	12,415.8	-2,573.7	-432.0	2,592.8	1.29	1.28	-0.12
15,232.0	91.81	178.15	12,412.7	-2,668.6	-429.0	2,687.4	0.13	-0.03	-0.13
15,326.0	90.23	178.72	12,411.1	-2,762.6	-426.5	2,781.1	1.79	-1.68	0.61
15,421.0	89.59	177.96	12,411.2	-2,857.5	-423.7	2,875.8	1.05	-0.67	-0.80
15,516.0	88.72	178.73	12,412.6	-2,952.5	-421.0	2,970.4	1.22	-0.92	0.81
15,610.0	88.93	178.06	12,414.5	-3,046.4	-418.3	3,064.1	0.75	0.22	-0.71
15,704.0	89.71	180.46	12,415.7	-3,140.4	-417.1	3,157.9	2.68	0.83	2.55
15,799.0	90.15	179.90	12,415.8	-3,235.4	-417.4	3,252.8	0.75	0.46	-0.59
15,894.0	89.44	179.45	12,416.1	-3,330.4	-416.9	3,347.6	0.88	-0.75	-0.47
15,989.0	89.22	178.98	12,417.2	-3,425.4	-415.6	3,442.4	0.55	-0.23	-0.49
16,083.0	88.86	178.62	12,418.8	-3,519.3	-413.6	3,536.2	0.54	-0.38	-0.38
16,177.0	89.42	179.44	12,420.2	-3,613.3	-412.0	3,629.9	1.06	0.60	0.87
16,271.0	90.20	179.69	12,420.5	-3,707.3	-411.3	3,723.7	0.87	0.83	0.27
16,366.0	90.86	179.16	12,419.6	-3,802.3	-410.3	3,818.6	0.89	0.69	-0.56
16,461.0	90.64	177.69	12,418.4	-3,897.2	-407.7	3,913.2	1.56	-0.23	-1.55
16,556.0	90.67	177.36	12,417.3	-3,992.1	-403.6	4,007.8	0.35	0.03	-0.35
16,650.0	91.95	178.19	12,415.2	-4,086.0	-400.0	4,101.4	1.62	1.36	0.88
16,744.0	92.53	179.05	12,411.5	-4,179.9	-397.7	4,195.0	1.10	0.62	0.91
16,839.0	92.60	179.98	12,407.2	-4,274.8	-396.9	4,289.8	0.98	0.07	0.98
16,934.0	92.80	180.39	12,402.8	-4,369.7	-397.2	4,384.5	0.48	0.21	0.43
17,028.0	92.00	179.53	12,398.8	-4,463.7	-397.2	4,478.3	1.25	-0.85	-0.91

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLEND FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLEND FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	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)
17,122.0	90.87	180.00	12,396.5	-4,557.6	-396.8	4,572.1	1.30	-1.20	0.50
17,216.0	90.02	180.41	12,395.7	-4,651.6	-397.1	4,666.0	1.00	-0.90	0.44
17,311.0	86.91	182.08	12,398.3	-4,746.6	-399.2	4,760.9	3.72	-3.27	1.76
17,406.0	87.03	181.32	12,403.3	-4,841.4	-402.0	4,855.8	0.81	0.13	-0.80
17,501.0	86.84	180.60	12,408.4	-4,936.2	-403.6	4,950.6	0.78	-0.20	-0.76
17,595.0	87.07	179.51	12,413.4	-5,030.1	-403.7	5,044.3	1.18	0.24	-1.16
17,691.0	88.60	180.79	12,417.0	-5,126.0	-403.9	5,140.1	2.08	1.59	1.33
17,785.0	90.11	180.41	12,418.1	-5,220.0	-404.9	5,234.0	1.66	1.61	-0.40
17,880.0	91.61	179.69	12,416.6	-5,315.0	-405.0	5,328.9	1.75	1.58	-0.76
17,975.0	92.94	179.06	12,412.9	-5,409.9	-404.0	5,423.6	1.55	1.40	-0.66
18,070.0	92.59	178.52	12,408.3	-5,504.8	-401.9	5,518.3	0.68	-0.37	-0.57
18,165.0	90.68	178.50	12,405.6	-5,599.7	-399.5	5,612.9	2.01	-2.01	-0.02
18,260.0	92.37	177.27	12,403.1	-5,694.6	-396.0	5,707.5	2.20	1.78	-1.29
18,355.0	91.11	177.33	12,400.2	-5,789.4	-391.5	5,802.0	1.33	-1.33	0.06
18,449.0	89.60	176.88	12,399.6	-5,883.3	-386.8	5,895.5	1.68	-1.61	-0.48
18,544.0	90.97	175.80	12,399.1	-5,978.1	-380.7	5,989.9	1.84	1.44	-1.14
18,638.0	90.89	176.17	12,397.6	-6,071.9	-374.1	6,083.1	0.40	-0.09	0.39
18,733.0	89.82	175.77	12,397.0	-6,166.6	-367.4	6,177.4	1.20	-1.13	-0.42
18,827.0	88.98	176.90	12,398.0	-6,260.4	-361.4	6,270.8	1.50	-0.89	1.20
18,921.0	87.95	178.77	12,400.5	-6,354.3	-357.9	6,364.4	2.27	-1.10	1.99
19,016.0	88.84	179.29	12,403.2	-6,449.3	-356.3	6,459.1	1.08	0.94	0.55
19,111.0	90.23	177.97	12,403.9	-6,544.2	-354.0	6,553.8	2.02	1.46	-1.39
19,205.0	89.74	178.42	12,404.0	-6,638.2	-351.0	6,647.5	0.71	-0.52	0.48
19,300.0	88.71	181.67	12,405.2	-6,733.2	-351.1	6,742.3	3.59	-1.08	3.42
19,395.0	89.61	184.07	12,406.6	-6,828.0	-355.9	6,837.3	2.70	0.95	2.53
19,489.0	90.82	182.93	12,406.3	-6,921.9	-361.6	6,931.3	1.77	1.29	-1.21
19,584.0	92.25	182.45	12,403.7	-7,016.7	-366.1	7,026.3	1.59	1.51	-0.51
19,679.0	91.83	183.40	12,400.4	-7,111.5	-370.9	7,121.2	1.09	-0.44	1.00
19,774.0	89.78	183.69	12,399.0	-7,206.3	-376.8	7,216.2	2.18	-2.16	0.31
19,869.0	91.30	183.05	12,398.1	-7,301.2	-382.4	7,311.2	1.74	1.60	-0.67
19,926.0	92.11	182.51	12,396.4	-7,358.1	-385.1	7,368.1	1.71	1.42	-0.95
Final MWD Svy @ 19929'MD									
19,942.4	92.11	182.51	12,395.8	-7,374.4	-385.8	7,384.5	0.00	0.00	0.00
LTP @ 11942.4'MD									
19,991.0	92.11	182.51	12,394.0	-7,423.0	-388.0	7,433.1	0.00	0.00	0.00
PTD @ 19991'MD									

Concho Resources LLC

Survey Report

Company:	NORTHERN DELAWARE BASIN	Local Co-ordinate Reference:	Well PITCHBLENDE FEDERAL 19-30 38H
Project:	LEA COUNTY, NM	TVD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Site:	BULLDOG	MD Reference:	KB=26' @ 3356.0usft (MCVAY 8)
Well:	PITCHBLENDE FEDERAL 19-30 38H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWP	Database:	edm

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
19,926.0	12,396.4	-7,358.1	-385.1	Final MWD Svy @ 19929'MD
19,942.4	12,395.8	-7,374.4	-385.8	LTP @ 11942.4'MD
19,991.0	12,394.0	-7,423.0	-388.0	PTD @ 19991'MD

Checked By: _____ Approved By: _____ Date: _____