

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
511 S. FIRST ST., ARTESIA, NM 88210
Phone: (575) 746-1283 Fax: (575) 746-9720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☒ AMENDED REPORT

As Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-45653	Pool Code 96340	Pool Name FAIRVIEW MILLS; BONE SPRING
Property Code 326533	Property Name PITCHBLEND FEDERAL 19-30	Well Number 38H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3329.9'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	19	25-S	35-E		450	NORTH	710	EAST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	30	25-S	35		2589	NORTH	1169	EAST	LEA
Dedicated Acres 240	Joint or Infill	Consolidation Code	Order No. NSL-8134						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

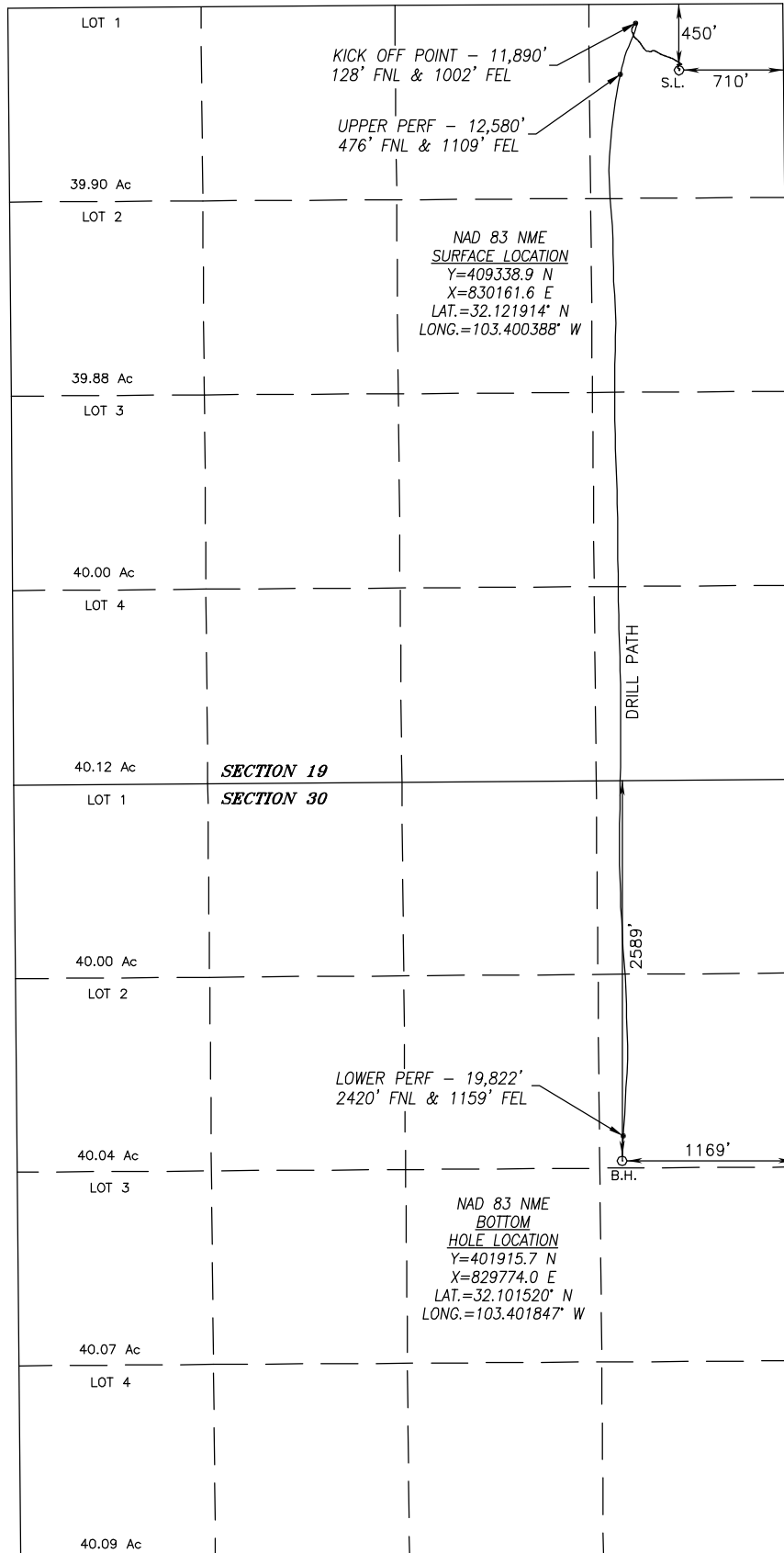
SEE PAGE 2

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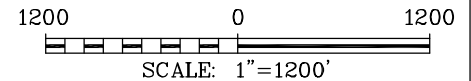
W.O. #20-1337

DRAWN BY: WN

Property Code 326533	Property Name PITCHBLEND FEDERAL 19-30	Well Number 38H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3329.9'



SURFACE INFO AND BOREPATH SHOWN HEREON IS BASED ON DIRECTIONAL SURVEY REPORT PROVIDED BY COG OPERATING, LLC FOR THE PITCHBLEND FEDERAL 19-30 #38H SUPPLIED TO HARCROW SURVEYING, LLC ON OCTOBER 7, 2020



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Amanda Avery 11/16/20
Signature Date

Amanda Avery
Printed Name

aavery@concho.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

DEC. 5, 2019/FEB. 11, 2020

Date of Survey/Date of Geographic Survey

Signature & Seal of Professional Surveyor



Chad Harcrow 10/8/20
Certificate No. CHAD HARCROW 17777

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W.O. #20-1337

DRAWN BY: WN

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	Latitude: 32° 7' 18.439 N
	+E/-W	0.0 usft	Easting:	788,974.90 usft	Longitude: 103° 23' 59.721 W
Position Uncertainty		3.0 usft	Wellhead Elevation:	usft	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	

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)
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

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)	
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	

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)
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 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)
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 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)	
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 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)
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 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)	
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 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)
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 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)
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: _____

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 11987

CONDITIONS OF APPROVAL

Operator:	COG OPERATING LLC	600 W Illinois Ave	Midland, TX79701	OGRID:	229137	Action Number:	11987	Action Type:	C-102
OCD Reviewer	Condition								
pkautz	None								