



OCD – HOBBS
04/16/2020
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Concho Resources, Inc.

Lea County, NM (NAD 27 NME)
(Brot Helm) Sec-35_T-24-S_R-34-E
Brot Helm Federal Com #602H

ST01

Design: AWB

Standard Survey Report

03 October, 2019



Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

Project	Lea County, NM (NAD 27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	(Brot Helm) Sec-35_T-24-S_R-34-E		
Site Position:		Northing:	430,515.90 usft
From:	Map	Easting:	776,731.20 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 10' 49.593 N
		Longitude:	103° 26' 20.027 W
		Grid Convergence:	0.48 °

Well	Brot Helm Federal Com #602H		
Well Position	+N/-S	0.0 usft	Northing: 430,522.50 usft
	+E/-W	0.0 usft	Easting: 777,711.10 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 10' 49.578 N
		Longitude:	103° 26' 8.626 W
		Ground Level:	3,415.9 usft

Wellbore	ST01				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	08/16/19	6.59	59.81	47,791.90000000

Design	AWB				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	11,745.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	179.51	

Survey Program	Date	10/03/19			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	11,745.0	SDI Gyro Svys (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
11,908.0	22,710.0	Intrepid MWD Crv/Lat (ST01)	MWD+IFR1+MS	MWD + IFR1 + Multi-Station Correction	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	1.10	304.08	100.0	0.5	-0.8	-0.5	1.10	1.10	0.00	
125.0	0.49	277.20	125.0	0.7	-1.1	-0.7	2.80	-2.44	-107.52	
150.0	0.49	273.89	150.0	0.7	-1.3	-0.7	0.11	0.00	-13.24	
175.0	0.46	273.27	175.0	0.7	-1.5	-0.7	0.12	-0.12	-2.48	
200.0	0.49	269.56	200.0	0.7	-1.7	-0.7	0.17	0.12	-14.84	
225.0	0.48	268.78	225.0	0.7	-1.9	-0.7	0.05	-0.04	-3.12	
250.0	0.41	277.04	250.0	0.7	-2.1	-0.7	0.38	-0.28	33.04	
275.0	0.46	271.25	275.0	0.7	-2.3	-0.8	0.27	0.20	-23.16	
300.0	0.46	270.07	300.0	0.7	-2.5	-0.8	0.04	0.00	-4.72	

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Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
325.0	0.52	275.58	325.0	0.8	-2.7	-0.8	0.30	0.24	22.04
350.0	0.46	267.79	350.0	0.8	-2.9	-0.8	0.36	-0.24	-31.16
375.0	0.52	274.21	375.0	0.8	-3.2	-0.8	0.32	0.24	25.68
400.0	0.44	251.09	400.0	0.7	-3.4	-0.8	0.83	-0.32	-92.48
425.0	0.46	245.47	425.0	0.7	-3.5	-0.7	0.19	0.08	-22.48
450.0	0.52	243.76	450.0	0.6	-3.7	-0.6	0.25	0.24	-6.84
475.0	0.47	233.92	475.0	0.5	-3.9	-0.5	0.39	-0.20	-39.36
500.0	0.50	233.50	500.0	0.3	-4.1	-0.4	0.12	0.12	-1.68
525.0	0.57	223.11	525.0	0.2	-4.3	-0.2	0.48	0.28	-41.56
550.0	0.60	222.22	550.0	0.0	-4.4	0.0	0.13	0.12	-3.56
575.0	0.64	215.28	575.0	-0.2	-4.6	0.2	0.34	0.16	-27.76
600.0	0.73	211.41	600.0	-0.5	-4.8	0.4	0.40	0.36	-15.48
625.0	0.77	203.05	625.0	-0.7	-4.9	0.7	0.47	0.16	-33.44
650.0	0.88	200.45	650.0	-1.1	-5.1	1.0	0.46	0.44	-10.40
675.0	0.82	202.16	675.0	-1.4	-5.2	1.4	0.26	-0.24	6.84
700.0	0.87	199.73	700.0	-1.8	-5.3	1.7	0.25	0.20	-9.72
725.0	0.85	194.18	725.0	-2.1	-5.4	2.1	0.34	-0.08	-22.20
750.0	0.83	190.81	750.0	-2.5	-5.5	2.4	0.21	-0.08	-13.48
775.0	0.83	186.46	775.0	-2.8	-5.6	2.8	0.25	0.00	-17.40
800.0	0.78	188.19	800.0	-3.2	-5.6	3.1	0.22	-0.20	6.92
825.0	0.80	182.82	824.9	-3.5	-5.6	3.5	0.31	0.08	-21.48
850.0	0.90	184.68	849.9	-3.9	-5.7	3.9	0.41	0.40	7.44
875.0	0.91	179.85	874.9	-4.3	-5.7	4.3	0.31	0.04	-19.32
900.0	0.94	176.36	899.9	-4.7	-5.7	4.7	0.26	0.12	-13.96
902.1	0.94	176.36	902.0	-4.7	-5.7	4.7	0.00	0.00	0.00
Rustler									
925.0	0.95	177.64	924.9	-5.1	-5.6	5.1	0.10	0.04	5.58
950.0	0.98	174.05	949.9	-5.5	-5.6	5.5	0.27	0.12	-14.36
975.0	0.87	179.91	974.9	-5.9	-5.6	5.9	0.58	-0.44	23.44
1,000.0	0.93	175.72	999.9	-6.3	-5.6	6.3	0.36	0.24	-16.76
1,025.0	1.11	166.81	1,024.9	-6.8	-5.5	6.7	0.96	0.72	-35.64
1,050.0	1.19	161.40	1,049.9	-7.3	-5.4	7.2	0.54	0.32	-21.64
1,075.0	1.21	162.63	1,074.9	-7.8	-5.2	7.7	0.13	0.08	4.92
1,100.0	1.30	160.03	1,099.9	-8.3	-5.0	8.2	0.43	0.36	-10.40
1,125.0	1.33	160.59	1,124.9	-8.8	-4.8	8.8	0.13	0.12	2.24
1,150.0	1.34	160.64	1,149.9	-9.4	-4.6	9.3	0.04	0.04	0.20
1,175.0	1.25	162.41	1,174.9	-9.9	-4.5	9.9	0.39	-0.36	7.08
1,200.0	1.30	159.72	1,199.9	-10.4	-4.3	10.4	0.31	0.20	-10.76
1,225.0	1.37	145.52	1,224.9	-10.9	-4.0	10.9	1.35	0.28	-56.80
1,250.0	1.33	117.29	1,249.9	-11.3	-3.6	11.3	2.64	-0.16	-112.92
1,275.0	1.68	102.20	1,274.9	-11.5	-3.0	11.5	2.10	1.40	-60.36
1,300.0	1.92	101.47	1,299.8	-11.7	-2.2	11.7	0.96	0.96	-2.92
1,325.0	1.86	100.01	1,324.8	-11.8	-1.4	11.8	0.31	-0.24	-5.84

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Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,350.0	1.81	97.68	1,349.8	-12.0	-0.6	12.0	0.36	-0.20	-9.32
1,375.0	1.68	96.24	1,374.8	-12.1	0.1	12.1	0.55	-0.52	-5.76
1,400.0	1.72	96.99	1,399.8	-12.1	0.9	12.1	0.18	0.16	3.00
1,425.0	1.64	94.91	1,424.8	-12.2	1.6	12.2	0.40	-0.32	-8.32
1,444.2	1.61	93.85	1,444.0	-12.3	2.2	12.3	0.22	-0.16	-5.53
TOS									
1,450.0	1.60	93.52	1,449.8	-12.3	2.3	12.3	0.22	-0.16	-5.67
1,475.0	1.68	95.47	1,474.8	-12.3	3.0	12.3	0.39	0.32	7.80
1,500.0	1.68	96.14	1,499.8	-12.4	3.8	12.4	0.08	0.00	2.68
1,525.0	1.65	94.16	1,524.7	-12.5	4.5	12.5	0.26	-0.12	-7.92
1,550.0	1.67	93.65	1,549.7	-12.5	5.2	12.6	0.10	0.08	-2.04
1,575.0	1.66	98.17	1,574.7	-12.6	5.9	12.6	0.53	-0.04	18.08
1,600.0	1.61	98.03	1,599.7	-12.7	6.6	12.7	0.20	-0.20	-0.56
1,625.0	1.56	98.30	1,624.7	-12.8	7.3	12.8	0.20	-0.20	1.08
1,650.0	1.60	99.46	1,649.7	-12.9	8.0	13.0	0.20	0.16	4.64
1,675.0	1.60	100.37	1,674.7	-13.0	8.7	13.1	0.10	0.00	3.64
1,700.0	1.56	101.30	1,699.7	-13.1	9.4	13.2	0.19	-0.16	3.72
1,725.0	1.52	101.24	1,724.7	-13.3	10.0	13.4	0.16	-0.16	-0.24
1,750.0	1.40	95.48	1,749.7	-13.4	10.7	13.5	0.76	-0.48	-23.04
1,775.0	1.19	74.97	1,774.7	-13.3	11.2	13.4	2.02	-0.84	-82.04
1,800.0	1.34	34.24	1,799.6	-13.0	11.6	13.1	3.57	0.60	-162.92
1,825.0	1.60	20.85	1,824.6	-12.5	11.9	12.6	1.72	1.04	-53.56
1,850.0	1.66	18.62	1,849.6	-11.8	12.2	11.9	0.35	0.24	-8.92
1,875.0	1.72	18.21	1,874.6	-11.1	12.4	11.2	0.24	0.24	-1.64
1,900.0	1.71	18.66	1,899.6	-10.4	12.6	10.5	0.07	-0.04	1.80
1,925.0	1.70	19.54	1,924.6	-9.7	12.9	9.8	0.11	-0.04	3.52
1,950.0	1.72	19.38	1,949.6	-9.0	13.1	9.1	0.08	0.08	-0.64
1,975.0	1.73	19.13	1,974.6	-8.3	13.4	8.4	0.05	0.04	-1.00
2,000.0	1.72	19.10	1,999.6	-7.5	13.6	7.7	0.04	-0.04	-0.12
2,025.0	1.71	19.46	2,024.6	-6.8	13.9	7.0	0.06	-0.04	1.44
2,050.0	2.07	4.69	2,049.5	-6.0	14.0	6.2	2.41	1.44	-59.08
2,075.0	2.76	355.03	2,074.5	-5.0	14.0	5.1	3.20	2.76	-38.64
2,100.0	3.22	353.75	2,099.5	-3.7	13.9	3.8	1.86	1.84	-5.12
2,125.0	3.45	349.45	2,124.4	-2.3	13.7	2.4	1.36	0.92	-17.20
2,150.0	3.46	348.68	2,149.4	-0.8	13.4	0.9	0.19	0.04	-3.08
2,175.0	3.56	349.44	2,174.3	0.7	13.1	-0.6	0.44	0.40	3.04
2,200.0	3.52	349.71	2,199.3	2.2	12.8	-2.1	0.17	-0.16	1.08
2,225.0	3.68	348.13	2,224.2	3.8	12.5	-3.7	0.75	0.64	-6.32
2,250.0	3.63	348.80	2,249.2	5.3	12.2	-5.2	0.26	-0.20	2.68
2,275.0	3.63	348.89	2,274.1	6.9	11.9	-6.8	0.02	0.00	0.36
2,300.0	3.67	348.90	2,299.1	8.5	11.6	-8.4	0.16	0.16	0.04
2,325.0	3.61	348.88	2,324.0	10.0	11.3	-9.9	0.24	-0.24	-0.08
2,350.0	3.70	348.70	2,349.0	11.6	11.0	-11.5	0.36	0.36	-0.72
2,375.0	3.68	348.64	2,373.9	13.2	10.6	-13.1	0.08	-0.08	-0.24

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2,400.0	3.84	348.21	2,398.9	14.8	10.3	-14.7	0.65	0.64	-1.72
2,425.0	3.67	348.78	2,423.8	16.4	10.0	-16.3	0.70	-0.68	2.28
2,450.0	3.72	348.14	2,448.8	18.0	9.7	-17.9	0.26	0.20	-2.56
2,475.0	3.64	348.83	2,473.7	19.5	9.3	-19.4	0.37	-0.32	2.76
2,500.0	3.63	348.45	2,498.7	21.1	9.0	-21.0	0.10	-0.04	-1.52
2,525.0	3.68	351.31	2,523.6	22.6	8.7	-22.6	0.76	0.20	11.44
2,550.0	3.92	357.87	2,548.6	24.3	8.6	-24.2	1.98	0.96	26.24
2,575.0	4.01	2.64	2,573.5	26.0	8.6	-25.9	1.37	0.36	19.08
2,600.0	4.10	5.20	2,598.5	27.8	8.7	-27.7	0.81	0.36	10.24
2,625.0	4.18	6.17	2,623.4	29.6	8.9	-29.5	0.43	0.32	3.88
2,650.0	4.12	6.80	2,648.3	31.4	9.1	-31.3	0.30	-0.24	2.52
2,675.0	4.11	7.29	2,673.3	33.2	9.3	-33.1	0.15	-0.04	1.96
2,700.0	4.04	7.12	2,698.2	34.9	9.6	-34.8	0.28	-0.28	-0.68
2,725.0	4.23	9.44	2,723.1	36.7	9.8	-36.6	1.01	0.76	9.28
2,750.0	4.16	8.62	2,748.1	38.5	10.1	-38.4	0.37	-0.28	-3.28
2,775.0	4.17	10.46	2,773.0	40.3	10.4	-40.2	0.54	0.04	7.36
2,800.0	4.23	10.89	2,797.9	42.1	10.7	-42.0	0.27	0.24	1.72
2,825.0	4.17	12.53	2,822.9	43.9	11.1	-43.8	0.54	-0.24	6.56
2,850.0	4.24	13.24	2,847.8	45.7	11.5	-45.6	0.35	0.28	2.84
2,875.0	4.17	14.71	2,872.7	47.5	12.0	-47.4	0.51	-0.28	5.88
2,900.0	4.14	14.91	2,897.7	49.2	12.4	-49.1	0.13	-0.12	0.80
2,925.0	4.15	15.42	2,922.6	51.0	12.9	-50.8	0.15	0.04	2.04
2,950.0	4.15	15.36	2,947.5	52.7	13.4	-52.6	0.02	0.00	-0.24
2,975.0	4.09	14.76	2,972.5	54.4	13.8	-54.3	0.30	-0.24	-2.40
3,000.0	3.93	12.96	2,997.4	56.1	14.3	-56.0	0.81	-0.64	-7.20
3,025.0	3.57	3.62	3,022.4	57.7	14.5	-57.6	2.83	-1.44	-37.36
3,050.0	3.48	359.03	3,047.3	59.3	14.5	-59.1	1.18	-0.36	-18.36
3,075.0	3.47	358.92	3,072.3	60.8	14.5	-60.7	0.05	-0.04	-0.44
3,100.0	3.44	359.15	3,097.2	62.3	14.5	-62.2	0.13	-0.12	0.92
3,125.0	3.44	359.58	3,122.2	63.8	14.5	-63.7	0.10	0.00	1.72
3,150.0	3.41	359.09	3,147.1	65.3	14.5	-65.2	0.17	-0.12	-1.96
3,175.0	3.45	1.17	3,172.1	66.8	14.5	-66.7	0.52	0.16	8.32
3,200.0	3.41	3.70	3,197.0	68.3	14.5	-68.2	0.63	-0.16	10.12
3,225.0	3.30	4.52	3,222.0	69.7	14.6	-69.6	0.48	-0.44	3.28
3,250.0	3.36	5.96	3,247.0	71.2	14.8	-71.1	0.41	0.24	5.76
3,275.0	3.23	7.15	3,271.9	72.6	14.9	-72.5	0.59	-0.52	4.76
3,300.0	2.76	19.54	3,296.9	73.9	15.2	-73.7	3.19	-1.88	49.56
3,325.0	2.51	34.49	3,321.8	74.9	15.7	-74.8	2.92	-1.00	59.80
3,350.0	2.38	43.74	3,346.8	75.7	16.4	-75.6	1.66	-0.52	37.00
3,375.0	2.35	49.39	3,371.8	76.4	17.1	-76.3	0.94	-0.12	22.60
3,400.0	2.31	50.49	3,396.8	77.1	17.9	-76.9	0.24	-0.16	4.40
3,425.0	2.35	50.75	3,421.8	77.7	18.7	-77.6	0.17	0.16	1.04
3,450.0	2.36	50.64	3,446.7	78.4	19.5	-78.2	0.04	0.04	-0.44

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)	
3,475.0	2.09	50.60	3,471.7	79.0	20.2	-78.8	1.08	-1.08	-0.16	
3,500.0	0.98	47.52	3,496.7	79.4	20.8	-79.2	4.45	-4.44	-12.32	
3,525.0	0.39	45.49	3,521.7	79.6	21.0	-79.5	2.36	-2.36	-8.12	
3,550.0	0.31	44.66	3,546.7	79.7	21.1	-79.6	0.32	-0.32	-3.32	
3,575.0	0.22	41.52	3,571.7	79.8	21.2	-79.6	0.36	-0.36	-12.56	
3,600.0	0.26	5.65	3,596.7	79.9	21.2	-79.7	0.61	0.16	-143.48	
3,625.0	0.28	20.43	3,621.7	80.0	21.2	-79.8	0.29	0.08	59.12	
3,650.0	0.32	41.99	3,646.7	80.1	21.3	-80.0	0.48	0.16	86.24	
3,675.0	0.26	46.18	3,671.7	80.2	21.4	-80.0	0.25	-0.24	16.76	
3,700.0	0.33	51.96	3,696.7	80.3	21.5	-80.1	0.30	0.28	23.12	
3,725.0	0.31	34.17	3,721.7	80.4	21.6	-80.2	0.40	-0.08	-71.16	
3,750.0	0.36	44.17	3,746.7	80.5	21.7	-80.3	0.31	0.20	40.00	
3,775.0	0.35	61.23	3,771.7	80.6	21.8	-80.4	0.42	-0.04	68.24	
3,800.0	0.32	58.49	3,796.7	80.7	21.9	-80.5	0.14	-0.12	-10.96	
3,825.0	0.32	65.67	3,821.7	80.8	22.0	-80.6	0.16	0.00	28.72	
3,850.0	0.31	64.63	3,846.7	80.8	22.2	-80.6	0.05	-0.04	-4.16	
3,875.0	0.32	66.10	3,871.7	80.9	22.3	-80.7	0.05	0.04	5.88	
3,900.0	0.30	72.30	3,896.7	80.9	22.4	-80.7	0.16	-0.08	24.80	
3,925.0	0.29	92.40	3,921.7	80.9	22.5	-80.7	0.41	-0.04	80.40	
3,950.0	0.22	93.26	3,946.7	80.9	22.7	-80.7	0.28	-0.28	3.44	
3,975.0	0.19	112.58	3,971.7	80.9	22.7	-80.7	0.30	-0.12	77.28	
4,000.0	0.14	137.16	3,996.7	80.9	22.8	-80.7	0.34	-0.20	98.32	
4,025.0	0.17	195.95	4,021.7	80.8	22.8	-80.6	0.62	0.12	235.16	
4,050.0	0.18	195.41	4,046.7	80.7	22.8	-80.5	0.04	0.04	-2.16	
4,075.0	0.20	205.80	4,071.7	80.7	22.8	-80.5	0.16	0.08	41.56	
4,100.0	0.26	234.46	4,096.7	80.6	22.7	-80.4	0.51	0.24	114.64	
4,125.0	0.31	241.18	4,121.7	80.5	22.6	-80.3	0.24	0.20	26.88	
4,150.0	0.33	246.73	4,146.7	80.5	22.5	-80.3	0.15	0.08	22.20	
4,175.0	0.34	238.89	4,171.7	80.4	22.3	-80.2	0.19	0.04	-31.36	
4,200.0	0.37	245.58	4,196.7	80.3	22.2	-80.1	0.20	0.12	26.76	
4,225.0	0.47	266.04	4,221.7	80.3	22.0	-80.1	0.71	0.40	81.84	
4,250.0	0.75	284.92	4,246.7	80.3	21.8	-80.1	1.36	1.12	75.52	
4,275.0	0.82	299.16	4,271.7	80.5	21.4	-80.3	0.83	0.28	56.96	
4,300.0	0.92	304.49	4,296.7	80.7	21.1	-80.5	0.51	0.40	21.32	
4,325.0	0.97	307.72	4,321.7	80.9	20.8	-80.7	0.29	0.20	12.92	
4,350.0	0.96	308.21	4,346.7	81.2	20.5	-81.0	0.05	-0.04	1.96	
4,375.0	0.97	306.89	4,371.7	81.4	20.1	-81.2	0.10	0.04	-5.28	
4,400.0	1.02	307.49	4,396.7	81.7	19.8	-81.5	0.20	0.20	2.40	
4,425.0	0.94	320.70	4,421.7	82.0	19.5	-81.8	0.96	-0.32	52.84	
4,450.0	0.82	335.84	4,446.7	82.3	19.3	-82.1	1.04	-0.48	60.56	
4,475.0	0.84	344.57	4,471.7	82.6	19.1	-82.5	0.51	0.08	34.92	
4,500.0	1.05	355.08	4,496.7	83.0	19.1	-82.9	1.09	0.84	42.04	
4,525.0	1.07	12.03	4,521.7	83.5	19.1	-83.3	1.25	0.08	67.80	

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
4,550.0	1.17	23.93	4,546.7	84.0	19.3	-83.8	1.01	0.40	47.60
4,575.0	1.42	33.75	4,571.7	84.4	19.5	-84.3	1.33	1.00	39.28
4,600.0	1.54	33.20	4,596.6	85.0	19.9	-84.8	0.48	0.48	-2.20
4,625.0	1.81	39.24	4,621.6	85.6	20.3	-85.4	1.29	1.08	24.16
4,650.0	1.92	46.93	4,646.6	86.2	20.9	-86.0	1.09	0.44	30.76
4,675.0	2.05	48.68	4,671.6	86.7	21.5	-86.6	0.57	0.52	7.00
4,700.0	2.20	54.82	4,696.6	87.3	22.3	-87.1	1.09	0.60	24.56
4,725.0	2.31	61.23	4,721.6	87.8	23.1	-87.6	1.10	0.44	25.64
4,750.0	2.34	63.14	4,746.6	88.3	24.0	-88.1	0.33	0.12	7.64
4,775.0	2.39	65.47	4,771.5	88.8	24.9	-88.5	0.43	0.20	9.32
4,800.0	2.48	65.53	4,796.5	89.2	25.9	-89.0	0.36	0.36	0.24
4,825.0	2.49	64.17	4,821.5	89.7	26.9	-89.4	0.24	0.04	-5.44
4,850.0	2.48	66.08	4,846.5	90.1	27.8	-89.9	0.33	-0.04	7.64
4,875.0	2.52	67.90	4,871.4	90.5	28.8	-90.3	0.36	0.16	7.28
4,900.0	2.64	66.60	4,896.4	91.0	29.9	-90.7	0.53	0.48	-5.20
4,925.0	2.97	68.47	4,921.4	91.4	31.0	-91.2	1.37	1.32	7.48
4,950.0	3.03	72.26	4,946.3	91.9	32.2	-91.6	0.83	0.24	15.16
4,975.0	3.10	71.14	4,971.3	92.3	33.5	-92.0	0.37	0.28	-4.48
5,000.0	2.98	76.15	4,996.3	92.7	34.8	-92.4	1.17	-0.48	20.04
5,025.0	2.98	81.70	5,021.2	92.9	36.1	-92.6	1.15	0.00	22.20
5,050.0	2.87	84.77	5,046.2	93.1	37.3	-92.8	0.77	-0.44	12.28
5,075.0	2.85	85.02	5,071.2	93.2	38.6	-92.9	0.09	-0.08	1.00
5,100.0	2.83	86.31	5,096.1	93.3	39.8	-92.9	0.27	-0.08	5.16
5,125.0	2.37	83.31	5,121.1	93.4	40.9	-93.0	1.92	-1.84	-12.00
5,150.0	1.96	78.31	5,146.1	93.5	41.9	-93.2	1.80	-1.64	-20.00
5,175.0	1.60	75.92	5,171.1	93.7	42.6	-93.3	1.47	-1.44	-9.56
5,200.0	1.54	69.41	5,196.1	93.9	43.3	-93.5	0.75	-0.24	-26.04
5,222.9	1.55	73.24	5,219.0	94.1	43.9	-93.7	0.45	0.04	16.69
BOS (Fletcher)									
5,225.0	1.55	73.58	5,221.1	94.1	43.9	-93.7	0.45	0.05	16.57
5,250.0	1.49	76.29	5,246.1	94.3	44.6	-93.9	0.37	-0.24	10.84
5,275.0	1.43	72.39	5,271.1	94.5	45.2	-94.1	0.46	-0.24	-15.60
5,300.0	1.31	67.24	5,296.0	94.7	45.7	-94.3	0.69	-0.48	-20.60
5,325.0	1.26	67.08	5,321.0	94.9	46.2	-94.5	0.20	-0.20	-0.64
5,350.0	1.22	60.05	5,346.0	95.1	46.7	-94.7	0.63	-0.16	-28.12
5,375.0	1.20	58.76	5,371.0	95.4	47.2	-95.0	0.14	-0.08	-5.16
5,400.0	1.19	60.30	5,396.0	95.7	47.6	-95.2	0.13	-0.04	6.16
5,425.0	1.19	59.40	5,421.0	95.9	48.1	-95.5	0.07	0.00	-3.60
5,450.0	1.13	50.34	5,446.0	96.2	48.5	-95.8	0.77	-0.24	-36.24
5,475.0	0.85	13.01	5,471.0	96.5	48.7	-96.1	2.75	-1.12	-149.32
5,500.0	1.04	337.04	5,496.0	96.9	48.7	-96.5	2.44	0.76	-143.88
5,503.0	1.06	335.94	5,499.0	97.0	48.7	-96.6	0.87	0.56	-36.73
LMAR (Top Delaware)									
5,525.0	1.19	328.86	5,521.0	97.4	48.5	-96.9	0.87	0.61	-32.18

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
5,543.0	1.23	328.30	5,539.0	97.7	48.3	-97.3	0.25	0.24	-3.12
BLCN									
5,550.0	1.25	328.09	5,546.0	97.8	48.2	-97.4	0.25	0.24	-2.97
5,575.0	1.24	328.55	5,571.0	98.3	47.9	-97.9	0.06	-0.04	1.84
5,600.0	1.27	328.40	5,596.0	98.7	47.6	-98.3	0.12	0.12	-0.60
5,625.0	1.24	331.29	5,621.0	99.2	47.3	-98.8	0.28	-0.12	11.56
5,650.0	0.93	332.89	5,646.0	99.6	47.1	-99.2	1.25	-1.24	6.40
5,675.0	0.60	337.09	5,671.0	99.9	47.0	-99.5	1.34	-1.32	16.80
5,700.0	0.42	349.27	5,696.0	100.2	46.9	-99.7	0.84	-0.72	48.72
5,725.0	0.46	344.29	5,721.0	100.3	46.9	-99.9	0.22	0.16	-19.92
5,750.0	0.64	345.81	5,746.0	100.6	46.8	-100.2	0.72	0.72	6.08
5,775.0	0.62	349.15	5,771.0	100.8	46.7	-100.4	0.17	-0.08	13.36
5,800.0	0.59	346.22	5,796.0	101.1	46.7	-100.7	0.17	-0.12	-11.72
5,825.0	0.61	345.31	5,821.0	101.3	46.6	-100.9	0.09	0.08	-3.64
5,850.0	0.60	345.39	5,846.0	101.6	46.5	-101.2	0.04	-0.04	0.32
5,875.0	0.56	351.77	5,871.0	101.9	46.5	-101.4	0.30	-0.16	25.52
5,900.0	0.58	351.10	5,896.0	102.1	46.5	-101.7	0.08	0.08	-2.68
5,925.0	0.69	353.60	5,921.0	102.4	46.4	-102.0	0.45	0.44	10.00
5,950.0	0.66	352.77	5,946.0	102.7	46.4	-102.3	0.13	-0.12	-3.32
5,975.0	0.72	352.23	5,971.0	103.0	46.3	-102.6	0.24	0.24	-2.16
6,000.0	0.78	352.33	5,996.0	103.3	46.3	-102.9	0.24	0.24	0.40
6,025.0	0.74	353.29	6,021.0	103.6	46.3	-103.2	0.17	-0.16	3.84
6,050.0	0.77	351.70	6,046.0	103.9	46.2	-103.5	0.15	0.12	-6.36
6,075.0	0.83	358.20	6,070.9	104.3	46.2	-103.9	0.43	0.24	26.00
6,100.0	0.86	353.56	6,095.9	104.7	46.2	-104.3	0.30	0.12	-18.56
6,125.0	0.94	352.74	6,120.9	105.0	46.1	-104.6	0.32	0.32	-3.28
6,150.0	0.93	353.79	6,145.9	105.5	46.1	-105.1	0.08	-0.04	4.20
6,175.0	0.96	354.75	6,170.9	105.9	46.0	-105.5	0.14	0.12	3.84
6,200.0	1.03	357.40	6,195.9	106.3	46.0	-105.9	0.34	0.28	10.60
6,225.0	1.00	357.66	6,220.9	106.7	46.0	-106.3	0.12	-0.12	1.04
6,250.0	1.06	355.23	6,245.9	107.2	45.9	-106.8	0.30	0.24	-9.72
6,275.0	1.06	356.82	6,270.9	107.6	45.9	-107.2	0.12	0.00	6.36
6,300.0	1.13	355.67	6,295.9	108.1	45.9	-107.7	0.29	0.28	-4.60
6,325.0	1.13	354.77	6,320.9	108.6	45.8	-108.2	0.07	0.00	-3.60
6,350.0	1.12	356.19	6,345.9	109.1	45.8	-108.7	0.12	-0.04	5.68
6,375.0	1.20	355.47	6,370.9	109.6	45.8	-109.2	0.33	0.32	-2.88
6,400.0	1.23	354.22	6,395.9	110.1	45.7	-109.7	0.16	0.12	-5.00
6,425.0	1.21	355.11	6,420.9	110.7	45.7	-110.3	0.11	-0.08	3.56
6,450.0	1.26	357.74	6,445.9	111.2	45.6	-110.8	0.30	0.20	10.52
6,475.0	1.27	352.36	6,470.9	111.8	45.6	-111.4	0.48	0.04	-21.52
6,500.0	1.30	356.24	6,495.9	112.3	45.5	-111.9	0.37	0.12	15.52
6,523.1	1.29	356.40	6,519.0	112.8	45.5	-112.4	0.05	-0.04	0.70
CYCN									
6,525.0	1.29	356.40	6,520.9	112.9	45.5	-112.5	0.01	0.01	-0.14

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
6,550.0	1.31	355.17	6,545.9	113.4	45.5	-113.0	0.14	0.08	-4.92
6,575.0	1.34	355.67	6,570.9	114.0	45.4	-113.6	0.13	0.12	2.00
6,600.0	1.33	355.43	6,595.8	114.6	45.4	-114.2	0.05	-0.04	-0.96
6,625.0	1.38	355.06	6,620.8	115.2	45.3	-114.8	0.20	0.20	-1.48
6,650.0	1.31	354.26	6,645.8	115.8	45.3	-115.4	0.29	-0.28	-3.20
6,675.0	1.39	355.63	6,670.8	116.4	45.2	-116.0	0.35	0.32	5.48
6,700.0	1.47	354.96	6,695.8	117.0	45.2	-116.6	0.33	0.32	-2.68
6,725.0	1.44	356.03	6,720.8	117.6	45.1	-117.2	0.16	-0.12	4.28
6,750.0	1.52	355.95	6,745.8	118.3	45.1	-117.9	0.32	0.32	-0.32
6,775.0	1.50	356.20	6,770.8	118.9	45.0	-118.5	0.08	-0.08	1.00
6,800.0	1.51	356.76	6,795.8	119.6	45.0	-119.2	0.07	0.04	2.24
6,825.0	1.52	356.72	6,820.8	120.2	44.9	-119.8	0.04	0.04	-0.16
6,850.0	1.48	356.06	6,845.8	120.9	44.9	-120.5	0.17	-0.16	-2.64
6,875.0	1.58	355.41	6,870.8	121.5	44.9	-121.2	0.41	0.40	-2.60
6,900.0	1.52	355.00	6,895.7	122.2	44.8	-121.8	0.24	-0.24	-1.64
6,925.0	1.50	356.53	6,920.7	122.9	44.7	-122.5	0.18	-0.08	6.12
6,950.0	1.48	355.93	6,945.7	123.5	44.7	-123.1	0.10	-0.08	-2.40
6,975.0	1.19	358.49	6,970.7	124.1	44.7	-123.7	1.18	-1.16	10.24
7,000.0	0.63	5.14	6,995.7	124.5	44.7	-124.1	2.28	-2.24	26.60
7,025.0	0.39	11.06	7,020.7	124.7	44.7	-124.3	0.98	-0.96	23.68
7,050.0	0.32	18.56	7,045.7	124.9	44.7	-124.5	0.34	-0.28	30.00
7,075.0	0.32	12.36	7,070.7	125.0	44.8	-124.6	0.14	0.00	-24.80
7,100.0	0.29	20.79	7,095.7	125.1	44.8	-124.7	0.22	-0.12	33.72
7,125.0	0.38	20.00	7,120.7	125.3	44.9	-124.9	0.36	0.36	-3.16
7,150.0	0.35	17.51	7,145.7	125.4	44.9	-125.0	0.14	-0.12	-9.96
7,175.0	0.37	25.54	7,170.7	125.6	45.0	-125.2	0.22	0.08	32.12
7,200.0	0.38	32.05	7,195.7	125.7	45.1	-125.3	0.17	0.04	26.04
7,225.0	0.42	18.44	7,220.7	125.9	45.1	-125.5	0.41	0.16	-54.44
7,250.0	0.43	24.09	7,245.7	126.0	45.2	-125.7	0.17	0.04	22.60
7,275.0	0.37	19.10	7,270.7	126.2	45.3	-125.8	0.28	-0.24	-19.96
7,300.0	0.35	22.43	7,295.7	126.4	45.3	-126.0	0.12	-0.08	13.32
7,325.0	0.35	18.55	7,320.7	126.5	45.4	-126.1	0.09	0.00	-15.52
7,350.0	0.39	22.15	7,345.7	126.6	45.4	-126.3	0.18	0.16	14.40
7,375.0	0.37	18.21	7,370.7	126.8	45.5	-126.4	0.13	-0.08	-15.76
7,400.0	0.42	23.80	7,395.7	127.0	45.5	-126.6	0.25	0.20	22.36
7,425.0	0.44	20.18	7,420.7	127.1	45.6	-126.7	0.13	0.08	-14.48
7,450.0	0.49	20.37	7,445.7	127.3	45.7	-126.9	0.20	0.20	0.76
7,475.0	0.53	13.89	7,470.7	127.5	45.8	-127.1	0.28	0.16	-25.92
7,500.0	0.54	8.90	7,495.7	127.8	45.8	-127.4	0.19	0.04	-19.96
7,525.0	0.44	11.61	7,520.7	128.0	45.8	-127.6	0.41	-0.40	10.84
7,550.0	0.47	16.88	7,545.7	128.2	45.9	-127.8	0.21	0.12	21.08
7,575.0	0.44	23.01	7,570.7	128.4	46.0	-128.0	0.23	-0.12	24.52
7,600.0	0.53	22.76	7,595.7	128.6	46.0	-128.2	0.36	0.36	-1.00

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,625.0	0.55	18.61	7,620.7	128.8	46.1	-128.4	0.18	0.08	-16.60
7,650.0	0.56	14.02	7,645.7	129.0	46.2	-128.6	0.18	0.04	-18.36
7,675.0	0.49	16.80	7,670.7	129.2	46.2	-128.8	0.30	-0.28	11.12
7,700.0	0.50	15.35	7,695.7	129.4	46.3	-129.0	0.06	0.04	-5.80
7,725.0	0.56	14.14	7,720.7	129.7	46.4	-129.3	0.24	0.24	-4.84
7,750.0	0.50	15.14	7,745.7	129.9	46.4	-129.5	0.24	-0.24	4.00
7,775.0	0.54	14.54	7,770.7	130.1	46.5	-129.7	0.16	0.16	-2.40
7,800.0	0.50	17.65	7,795.7	130.3	46.5	-129.9	0.20	-0.16	12.44
7,825.0	0.47	18.76	7,820.7	130.5	46.6	-130.1	0.13	-0.12	4.44
7,850.0	0.52	23.63	7,845.7	130.7	46.7	-130.3	0.26	0.20	19.48
7,875.0	0.52	20.90	7,870.7	130.9	46.8	-130.5	0.10	0.00	-10.92
7,900.0	0.58	7.59	7,895.7	131.2	46.8	-130.8	0.56	0.24	-53.24
7,925.0	0.61	2.34	7,920.7	131.4	46.9	-131.0	0.25	0.12	-21.00
7,950.0	0.65	2.29	7,945.7	131.7	46.9	-131.3	0.16	0.16	-0.20
7,975.0	0.69	354.91	7,970.7	132.0	46.9	-131.6	0.38	0.16	-29.52
8,000.0	0.70	355.52	7,995.7	132.3	46.8	-131.9	0.05	0.04	2.44
8,025.0	0.75	357.32	8,020.7	132.6	46.8	-132.2	0.22	0.20	7.20
8,050.0	0.73	347.85	8,045.7	132.9	46.8	-132.5	0.50	-0.08	-37.88
8,075.0	0.79	345.70	8,070.7	133.2	46.7	-132.8	0.27	0.24	-8.60
8,100.0	0.83	344.70	8,095.7	133.6	46.6	-133.2	0.17	0.16	-4.00
8,125.0	0.89	339.17	8,120.7	133.9	46.5	-133.5	0.41	0.24	-22.12
8,150.0	0.90	339.21	8,145.7	134.3	46.4	-133.9	0.04	0.04	0.16
8,153.3	0.90	338.62	8,149.0	134.4	46.3	-134.0	0.32	0.15	-17.72
BYCN									
8,175.0	0.94	334.92	8,170.7	134.7	46.2	-134.3	0.32	0.16	-17.07
8,200.0	0.91	337.66	8,195.7	135.0	46.0	-134.6	0.21	-0.12	10.96
8,225.0	0.86	337.34	8,220.7	135.4	45.9	-135.0	0.20	-0.20	-1.28
8,250.0	0.94	338.91	8,245.7	135.8	45.7	-135.4	0.33	0.32	6.28
8,275.0	0.99	336.74	8,270.7	136.2	45.6	-135.8	0.25	0.20	-8.68
8,300.0	1.03	336.64	8,295.7	136.6	45.4	-136.2	0.16	0.16	-0.40
8,325.0	1.04	339.37	8,320.6	137.0	45.2	-136.6	0.20	0.04	10.92
8,350.0	1.04	338.11	8,345.6	137.4	45.1	-137.0	0.09	0.00	-5.04
8,375.0	1.06	337.07	8,370.6	137.8	44.9	-137.4	0.11	0.08	-4.16
8,400.0	1.04	337.55	8,395.6	138.3	44.7	-137.9	0.09	-0.08	1.92
8,425.0	1.13	336.42	8,420.6	138.7	44.5	-138.3	0.37	0.36	-4.52
8,450.0	1.07	332.68	8,445.6	139.1	44.3	-138.7	0.37	-0.24	-14.96
8,475.0	1.05	335.06	8,470.6	139.5	44.1	-139.1	0.19	-0.08	9.52
8,500.0	0.99	335.39	8,495.6	139.9	43.9	-139.6	0.24	-0.24	1.32
8,525.0	1.03	335.36	8,520.6	140.3	43.8	-140.0	0.16	0.16	-0.12
8,550.0	1.07	335.03	8,545.6	140.8	43.6	-140.4	0.16	0.16	-1.32
8,575.0	1.08	336.75	8,570.6	141.2	43.4	-140.8	0.14	0.04	6.88
8,600.0	1.02	332.92	8,595.6	141.6	43.2	-141.2	0.37	-0.24	-15.32
8,625.0	1.03	333.50	8,620.6	142.0	43.0	-141.6	0.06	0.04	2.32

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
8,650.0	1.08	334.70	8,645.6	142.4	42.8	-142.0	0.22	0.20	4.80
8,675.0	1.08	336.79	8,670.6	142.8	42.6	-142.5	0.16	0.00	8.36
8,700.0	1.12	337.60	8,695.6	143.3	42.4	-142.9	0.17	0.16	3.24
8,725.0	1.12	339.09	8,720.6	143.7	42.2	-143.4	0.12	0.00	5.96
8,750.0	1.15	335.70	8,745.6	144.2	42.0	-143.8	0.29	0.12	-13.56
8,775.0	1.10	336.11	8,770.6	144.6	41.8	-144.3	0.20	-0.20	1.64
8,800.0	1.19	332.48	8,795.6	145.1	41.6	-144.7	0.46	0.36	-14.52
8,825.0	1.08	330.14	8,820.6	145.5	41.4	-145.2	0.48	-0.44	-9.36
8,850.0	1.10	334.14	8,845.6	145.9	41.1	-145.6	0.31	0.08	16.00
8,875.0	1.12	336.80	8,870.5	146.4	40.9	-146.0	0.22	0.08	10.64
8,900.0	1.17	338.25	8,895.5	146.8	40.8	-146.5	0.23	0.20	5.80
8,925.0	1.16	336.34	8,920.5	147.3	40.6	-147.0	0.16	-0.04	-7.64
8,950.0	1.18	335.52	8,945.5	147.8	40.4	-147.4	0.10	0.08	-3.28
8,975.0	1.15	332.12	8,970.5	148.2	40.1	-147.9	0.30	-0.12	-13.60
9,000.0	1.09	333.58	8,995.5	148.7	39.9	-148.3	0.27	-0.24	5.84
9,025.0	1.16	334.50	9,020.5	149.1	39.7	-148.8	0.29	0.28	3.68
9,050.0	1.19	336.11	9,045.5	149.6	39.5	-149.2	0.18	0.12	6.44
9,075.0	1.15	338.89	9,070.5	150.1	39.3	-149.7	0.28	-0.16	11.12
9,100.0	1.19	347.47	9,095.5	150.5	39.1	-150.2	0.72	0.16	34.32
9,125.0	1.03	353.36	9,120.5	151.0	39.1	-150.7	0.79	-0.64	23.56
9,150.0	1.08	1.37	9,145.5	151.5	39.0	-151.1	0.62	0.20	32.04
9,175.0	1.09	8.91	9,170.5	151.9	39.1	-151.6	0.57	0.04	30.16
9,200.0	1.04	16.26	9,195.5	152.4	39.2	-152.1	0.58	-0.20	29.40
9,225.0	1.09	22.21	9,220.5	152.8	39.3	-152.5	0.49	0.20	23.80
9,250.0	1.10	22.81	9,245.5	153.3	39.5	-152.9	0.06	0.04	2.40
9,275.0	1.11	33.21	9,270.5	153.7	39.7	-153.4	0.80	0.04	41.60
9,300.0	1.17	38.38	9,295.5	154.1	40.0	-153.8	0.48	0.24	20.68
9,325.0	1.24	46.04	9,320.5	154.5	40.4	-154.1	0.70	0.28	30.64
9,350.0	1.31	55.50	9,345.5	154.8	40.8	-154.5	0.89	0.28	37.84
9,375.0	1.39	51.34	9,370.4	155.2	41.3	-154.8	0.51	0.32	-16.64
9,375.6	1.39	51.34	9,371.0	155.2	41.3	-154.8	0.00	0.00	0.00
Bone Sprg (BSGL)									
9,400.0	1.31	60.36	9,395.4	155.5	41.8	-155.2	0.93	-0.33	36.89
9,425.0	1.39	59.64	9,420.4	155.8	42.3	-155.4	0.33	0.32	-2.88
9,450.0	1.37	58.93	9,445.4	156.1	42.8	-155.8	0.11	-0.08	-2.84
9,475.0	1.37	62.38	9,470.4	156.4	43.3	-156.0	0.33	0.00	13.80
9,500.0	1.36	61.93	9,495.4	156.7	43.8	-156.3	0.06	-0.04	-1.80
9,525.0	1.34	62.19	9,520.4	157.0	44.4	-156.6	0.08	-0.08	1.04
9,550.0	1.34	62.07	9,545.4	157.2	44.9	-156.9	0.01	0.00	-0.48
9,575.0	1.16	63.50	9,570.4	157.5	45.4	-157.1	0.73	-0.72	5.72
9,600.0	1.08	59.68	9,595.4	157.7	45.8	-157.3	0.44	-0.32	-15.28
9,625.0	0.96	58.87	9,620.4	158.0	46.2	-157.6	0.48	-0.48	-3.24
9,650.0	0.70	56.44	9,645.4	158.1	46.5	-157.7	1.05	-1.04	-9.72
9,675.0	0.46	51.80	9,670.4	158.3	46.7	-157.9	0.98	-0.96	-18.56

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S-R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
9,700.0	0.41	10.27	9,695.4	158.4	46.8	-158.0	1.25	-0.20	-166.12
9,725.0	0.29	325.73	9,720.4	158.6	46.8	-158.2	1.15	-0.48	-178.16
9,750.0	0.45	309.77	9,745.4	158.7	46.7	-158.3	0.76	0.64	-63.84
9,775.0	0.55	302.52	9,770.4	158.8	46.5	-158.4	0.47	0.40	-29.00
9,800.0	0.74	283.33	9,795.4	158.9	46.2	-158.5	1.14	0.76	-76.76
9,825.0	0.88	282.44	9,820.4	159.0	45.9	-158.6	0.56	0.56	-3.56
9,850.0	1.00	279.64	9,845.4	159.1	45.5	-158.7	0.51	0.48	-11.20
9,875.0	1.14	285.59	9,870.4	159.2	45.0	-158.8	0.71	0.56	23.80
9,900.0	1.37	282.20	9,895.4	159.3	44.5	-158.9	0.97	0.92	-13.56
9,925.0	1.37	279.42	9,920.4	159.4	43.9	-159.0	0.27	0.00	-11.12
9,950.0	1.23	256.16	9,945.3	159.4	43.3	-159.0	2.17	-0.56	-93.04
9,975.0	1.27	267.62	9,970.3	159.3	42.8	-159.0	1.01	0.16	45.84
10,000.0	1.22	274.50	9,995.3	159.3	42.3	-159.0	0.63	-0.20	27.52
10,025.0	0.88	248.20	10,020.3	159.3	41.8	-158.9	2.32	-1.36	-105.20
10,050.0	0.89	244.67	10,045.3	159.1	41.5	-158.8	0.22	0.04	-14.12
10,075.0	0.96	239.56	10,070.3	159.0	41.1	-158.6	0.43	0.28	-20.44
10,100.0	0.87	236.89	10,095.3	158.7	40.8	-158.4	0.40	-0.36	-10.68
10,125.0	0.86	236.94	10,120.3	158.5	40.5	-158.2	0.04	-0.04	0.20
10,150.0	0.94	242.27	10,145.3	158.3	40.1	-158.0	0.46	0.32	21.32
10,175.0	1.05	239.05	10,170.3	158.1	39.7	-157.8	0.49	0.44	-12.88
10,200.0	1.01	236.79	10,195.3	157.9	39.4	-157.5	0.23	-0.16	-9.04
10,225.0	0.99	239.27	10,220.3	157.7	39.0	-157.3	0.19	-0.08	9.92
10,250.0	1.03	240.08	10,245.3	157.4	38.6	-157.1	0.17	0.16	3.24
10,275.0	1.04	247.33	10,270.3	157.2	38.2	-156.9	0.53	0.04	29.00
10,300.0	1.03	252.18	10,295.3	157.1	37.8	-156.7	0.35	-0.04	19.40
10,325.0	1.29	245.15	10,320.3	156.9	37.3	-156.6	1.18	1.04	-28.12
10,350.0	1.26	247.59	10,345.3	156.7	36.8	-156.3	0.25	-0.12	9.76
10,375.0	1.33	249.87	10,370.3	156.5	36.3	-156.1	0.35	0.28	9.12
10,400.0	1.35	252.13	10,395.3	156.3	35.7	-156.0	0.23	0.08	9.04
10,425.0	1.44	254.09	10,420.3	156.1	35.1	-155.8	0.41	0.36	7.84
10,450.0	1.45	255.40	10,445.3	155.9	34.5	-155.6	0.14	0.04	5.24
10,475.0	1.63	256.89	10,470.2	155.8	33.9	-155.5	0.74	0.72	5.96
10,500.0	1.59	253.73	10,495.2	155.6	33.2	-155.3	0.39	-0.16	-12.64
10,525.0	1.58	256.38	10,520.2	155.4	32.5	-155.1	0.30	-0.04	10.60
10,550.0	1.62	256.20	10,545.2	155.3	31.9	-155.0	0.16	0.16	-0.72
10,565.8	1.59	257.13	10,561.0	155.1	31.4	-154.9	0.23	-0.16	5.91
FBSG_sand									
10,575.0	1.58	257.69	10,570.2	155.1	31.2	-154.8	0.23	-0.16	6.05
10,600.0	1.70	259.74	10,595.2	155.0	30.5	-154.7	0.53	0.48	8.20
10,625.0	1.67	256.27	10,620.2	154.8	29.8	-154.5	0.43	-0.12	-13.88
10,650.0	1.62	258.53	10,645.2	154.6	29.1	-154.4	0.33	-0.20	9.04
10,675.0	1.74	259.14	10,670.2	154.5	28.3	-154.3	0.49	0.48	2.44
10,700.0	1.71	259.20	10,695.2	154.4	27.6	-154.1	0.12	-0.12	0.24

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
10,725.0	1.74	256.73	10,720.1	154.2	26.9	-154.0	0.32	0.12	-9.88
10,750.0	1.78	257.19	10,745.1	154.0	26.1	-153.8	0.17	0.16	1.84
10,775.0	1.83	254.97	10,770.1	153.8	25.3	-153.6	0.34	0.20	-8.88
10,800.0	1.87	259.13	10,795.1	153.7	24.6	-153.4	0.56	0.16	16.64
10,825.0	1.88	258.98	10,820.1	153.5	23.8	-153.3	0.04	0.04	-0.60
10,850.0	1.96	255.87	10,845.1	153.3	22.9	-153.1	0.53	0.32	-12.44
10,875.0	1.90	255.17	10,870.1	153.1	22.1	-152.9	0.26	-0.24	-2.80
10,900.0	2.00	255.88	10,895.0	152.9	21.3	-152.7	0.41	0.40	2.84
10,925.0	2.04	254.57	10,920.0	152.7	20.4	-152.5	0.24	0.16	-5.24
10,950.0	2.06	256.02	10,945.0	152.4	19.6	-152.3	0.22	0.08	5.80
10,975.0	2.04	257.25	10,970.0	152.2	18.7	-152.1	0.19	-0.08	4.92
11,000.0	2.16	257.12	10,995.0	152.0	17.8	-151.9	0.48	0.48	-0.52
11,025.0	2.09	257.16	11,020.0	151.8	16.9	-151.7	0.28	-0.28	0.16
11,050.0	1.71	256.98	11,045.0	151.6	16.1	-151.5	1.52	-1.52	-0.72
11,075.0	1.29	265.85	11,069.9	151.5	15.5	-151.4	1.91	-1.68	35.48
11,100.0	1.30	268.89	11,094.9	151.5	14.9	-151.4	0.28	0.04	12.16
11,125.0	1.36	267.05	11,119.9	151.5	14.3	-151.4	0.29	0.24	-7.36
11,146.1	1.39	267.86	11,141.0	151.5	13.8	-151.3	0.18	0.16	3.82
SBSG_sand									
11,150.0	1.40	268.00	11,144.9	151.5	13.7	-151.3	0.18	0.16	3.69
11,175.0	1.44	268.45	11,169.9	151.5	13.1	-151.3	0.17	0.16	1.80
11,200.0	1.44	267.16	11,194.9	151.4	12.5	-151.3	0.13	0.00	-5.16
11,225.0	1.60	266.43	11,219.9	151.4	11.8	-151.3	0.64	0.64	-2.92
11,250.0	1.68	265.00	11,244.9	151.3	11.1	-151.2	0.36	0.32	-5.72
11,275.0	1.77	263.77	11,269.9	151.3	10.3	-151.2	0.39	0.36	-4.92
11,300.0	1.79	263.31	11,294.9	151.2	9.6	-151.1	0.10	0.08	-1.84
11,325.0	1.96	261.49	11,319.9	151.1	8.8	-151.0	0.72	0.68	-7.28
11,350.0	2.13	262.72	11,344.8	150.9	7.9	-150.9	0.70	0.68	4.92
11,375.0	2.21	261.36	11,369.8	150.8	6.9	-150.7	0.38	0.32	-5.44
11,400.0	2.25	262.52	11,394.8	150.7	6.0	-150.6	0.24	0.16	4.64
11,425.0	2.36	262.56	11,419.8	150.5	5.0	-150.5	0.44	0.44	0.16
11,450.0	2.45	262.47	11,444.8	150.4	3.9	-150.4	0.36	0.36	-0.36
11,475.0	2.54	262.52	11,469.7	150.3	2.9	-150.2	0.36	0.36	0.20
11,500.0	2.74	264.18	11,494.7	150.1	1.7	-150.1	0.86	0.80	6.64
11,525.0	2.74	267.88	11,519.7	150.1	0.5	-150.0	0.71	0.00	14.80
11,550.0	2.76	268.53	11,544.6	150.0	-0.7	-150.0	0.15	0.08	2.60
11,575.0	2.78	267.85	11,569.6	150.0	-1.9	-150.0	0.15	0.08	-2.72
11,586.4	2.67	267.07	11,581.0	150.0	-2.4	-150.0	1.05	-1.00	-6.87
SBSG_sand_Base									
11,600.0	2.53	266.04	11,594.6	149.9	-3.0	-149.9	1.05	-1.00	-7.55
11,625.0	2.36	260.63	11,619.6	149.8	-4.1	-149.8	1.15	-0.68	-21.64
11,650.0	2.45	255.15	11,644.5	149.6	-5.1	-149.6	0.99	0.36	-21.92
11,675.0	2.50	251.97	11,669.5	149.3	-6.2	-149.3	0.58	0.20	-12.72
11,700.0	2.75	253.87	11,694.5	148.9	-7.2	-149.0	1.06	1.00	7.60

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
11,725.0	2.90	250.46	11,719.5	148.6	-8.4	-148.6	0.90	0.60	-13.64
11,745.0	3.02	246.45	11,739.4	148.2	-9.4	-148.2	1.20	0.60	-20.05
11,908.0	3.81	246.58	11,902.1	144.3	-18.3	-144.5	0.48	0.48	0.08
11,971.0	4.59	209.91	11,965.0	141.3	-21.5	-141.5	4.35	1.24	-58.21
12,002.0	7.17	180.38	11,995.8	138.3	-22.1	-138.5	12.57	8.32	-95.26
12,033.0	10.81	174.19	12,026.4	133.4	-21.8	-133.6	12.13	11.74	-19.97
12,065.0	13.62	165.48	12,057.7	126.8	-20.6	-127.0	10.48	8.78	-27.22
12,096.0	16.89	166.07	12,087.6	118.9	-18.6	-119.1	10.56	10.55	1.90
12,128.0	21.26	169.05	12,117.9	108.7	-16.3	-108.8	13.99	13.66	9.31
12,160.0	24.30	171.11	12,147.4	96.5	-14.2	-96.6	9.82	9.50	6.44
12,191.0	27.25	170.49	12,175.3	83.2	-12.1	-83.3	9.56	9.52	-2.00
12,197.5	28.03	170.59	12,181.0	80.2	-11.6	-80.3	12.11	12.09	1.51
TBSG_sand									
12,223.0	31.12	170.93	12,203.2	67.8	-9.5	-67.9	12.11	12.09	1.34
12,254.0	33.02	170.69	12,229.5	51.5	-6.9	-51.6	6.14	6.13	-0.77
12,285.0	34.29	170.96	12,255.3	34.6	-4.2	-34.6	4.13	4.10	0.87
12,317.0	34.94	172.75	12,281.6	16.6	-1.6	-16.6	3.77	2.03	5.59
12,348.0	35.18	174.87	12,307.0	-1.1	0.3	1.1	4.00	0.77	6.84
12,380.0	36.84	177.12	12,332.9	-19.9	1.6	19.9	6.63	5.19	7.03
12,411.0	39.86	179.32	12,357.2	-39.1	2.2	39.1	10.69	9.74	7.10
12,442.0	41.65	181.56	12,380.7	-59.3	2.0	59.3	7.46	5.77	7.23
12,474.0	42.96	183.76	12,404.3	-80.8	1.0	80.8	6.18	4.09	6.88
12,505.0	45.39	182.65	12,426.6	-102.4	-0.2	102.4	8.23	7.84	-3.58
12,536.0	47.08	179.82	12,448.0	-124.8	-0.6	124.8	8.55	5.45	-9.13
12,568.0	50.12	177.97	12,469.2	-148.8	-0.2	148.8	10.44	9.50	-5.78
12,600.0	54.87	176.60	12,488.7	-174.1	1.0	174.1	15.23	14.84	-4.28
12,631.0	57.56	176.55	12,505.9	-199.8	2.6	199.9	8.68	8.68	-0.16
12,663.0	60.23	176.43	12,522.4	-227.2	4.3	227.2	8.35	8.34	-0.38
12,694.0	64.06	176.00	12,536.9	-254.5	6.1	254.6	12.42	12.35	-1.39
12,726.0	69.13	173.56	12,549.6	-283.8	8.8	283.8	17.32	15.84	-7.63
12,757.0	72.90	171.52	12,559.7	-312.8	12.6	312.9	13.66	12.16	-6.58
12,789.0	75.61	172.44	12,568.4	-343.3	16.9	343.5	8.91	8.47	2.88
12,820.0	78.52	175.47	12,575.3	-373.4	20.0	373.5	13.37	9.39	9.77
12,852.0	81.22	177.03	12,580.9	-404.8	22.1	405.0	9.71	8.44	4.88
12,883.0	83.89	177.29	12,585.0	-435.5	23.6	435.7	8.65	8.61	0.84
12,890.0	84.32	177.45	12,585.7	-442.4	23.9	442.6	6.55	6.14	2.29
12,984.0	88.46	177.37	12,591.6	-536.1	28.2	536.4	4.41	4.40	-0.09
13,079.0	87.27	178.73	12,595.1	-631.0	31.4	631.3	1.90	-1.25	1.43
13,173.0	87.26	178.77	12,599.6	-724.9	33.5	725.1	0.04	-0.01	0.04
13,267.0	88.09	179.98	12,603.4	-818.8	34.5	819.1	1.56	0.88	1.29
13,362.0	88.68	179.61	12,606.1	-913.8	34.8	914.0	0.73	0.62	-0.39
13,456.0	89.44	179.46	12,607.7	-1,007.7	35.6	1,008.0	0.82	0.81	-0.16
13,551.0	88.21	181.89	12,609.6	-1,102.7	34.5	1,103.0	2.87	-1.29	2.56
13,646.0	85.01	181.23	12,615.2	-1,197.5	31.9	1,197.7	3.44	-3.37	-0.69

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
13,700.9	82.91	181.14	12,621.0	-1,252.1	30.7	1,252.3	3.83	-3.83	-0.16
WFMP									
13,741.0	81.37	181.08	12,626.5	-1,291.8	30.0	1,292.0	3.83	-3.83	-0.16
13,835.0	85.06	180.28	12,637.6	-1,385.1	28.9	1,385.3	4.02	3.93	-0.85
13,930.0	86.38	181.03	12,644.7	-1,479.8	27.8	1,480.0	1.60	1.39	0.79
14,025.0	86.44	181.19	12,650.6	-1,574.6	26.0	1,574.8	0.18	0.06	0.17
14,120.0	86.48	181.70	12,656.5	-1,669.4	23.6	1,669.6	0.54	0.04	0.54
14,214.0	86.13	180.05	12,662.5	-1,763.2	22.1	1,763.3	1.79	-0.37	-1.76
14,309.0	89.99	179.01	12,665.8	-1,858.1	22.9	1,858.3	4.21	4.06	-1.09
14,404.0	90.98	178.89	12,665.0	-1,953.1	24.6	1,953.2	1.05	1.04	-0.13
14,498.0	89.94	180.02	12,664.2	-2,047.1	25.5	2,047.2	1.63	-1.11	1.20
14,593.0	89.87	180.45	12,664.4	-2,142.1	25.2	2,142.2	0.46	-0.07	0.45
14,687.0	87.20	181.11	12,666.8	-2,236.0	23.9	2,236.2	2.93	-2.84	0.70
14,782.0	86.88	181.11	12,671.7	-2,330.9	22.0	2,331.0	0.34	-0.34	0.00
14,876.0	86.35	180.91	12,677.2	-2,424.7	20.4	2,424.8	0.60	-0.56	-0.21
14,971.0	88.30	180.27	12,681.7	-2,519.6	19.4	2,519.7	2.16	2.05	-0.67
15,066.0	88.58	180.62	12,684.2	-2,614.6	18.7	2,614.6	0.47	0.29	0.37
15,160.0	89.05	180.17	12,686.2	-2,708.6	18.0	2,708.6	0.69	0.50	-0.48
15,255.0	88.84	180.45	12,687.9	-2,803.5	17.5	2,803.6	0.37	-0.22	0.29
15,350.0	88.51	180.28	12,690.1	-2,898.5	16.9	2,898.5	0.39	-0.35	-0.18
15,445.0	88.65	180.87	12,692.5	-2,993.5	15.9	2,993.5	0.64	0.15	0.62
15,539.0	88.25	181.47	12,695.0	-3,087.4	14.0	3,087.4	0.77	-0.43	0.64
15,633.0	89.43	182.69	12,696.9	-3,181.3	10.6	3,181.3	1.81	1.26	1.30
15,727.0	89.02	180.83	12,698.2	-3,275.3	7.7	3,275.2	2.03	-0.44	-1.98
15,821.0	87.97	178.65	12,700.7	-3,369.2	8.2	3,369.2	2.57	-1.12	-2.32
15,916.0	88.30	179.86	12,703.8	-3,464.2	9.4	3,464.1	1.32	0.35	1.27
16,010.0	92.57	179.06	12,703.1	-3,558.1	10.3	3,558.1	4.62	4.54	-0.85
16,105.0	88.15	178.97	12,702.5	-3,653.1	11.9	3,653.1	4.65	-4.65	-0.09
16,199.0	87.58	179.25	12,706.0	-3,747.0	13.4	3,747.0	0.68	-0.61	0.30
16,293.0	87.93	179.25	12,709.6	-3,840.9	14.6	3,840.9	0.37	0.37	0.00
16,387.0	85.96	179.06	12,714.6	-3,934.8	16.0	3,934.8	2.11	-2.10	-0.20
16,482.0	87.72	178.52	12,719.9	-4,029.6	18.0	4,029.6	1.94	1.85	-0.57
16,576.0	88.31	179.18	12,723.1	-4,123.6	19.9	4,123.6	0.94	0.63	0.70
16,671.0	88.12	179.14	12,726.1	-4,218.5	21.3	4,218.5	0.20	-0.20	-0.04
16,765.0	88.53	179.50	12,728.8	-4,312.5	22.4	4,312.5	0.58	0.44	0.38
16,859.0	88.00	179.21	12,731.7	-4,406.4	23.4	4,406.4	0.64	-0.56	-0.31
16,954.0	87.88	179.26	12,735.1	-4,501.3	24.7	4,501.4	0.14	-0.13	0.05
17,048.0	89.37	179.48	12,737.4	-4,595.3	25.7	4,595.3	1.60	1.59	0.23
17,142.0	88.42	180.18	12,739.2	-4,689.3	26.0	4,689.3	1.26	-1.01	0.74
17,237.0	92.17	179.94	12,738.7	-4,784.3	25.9	4,784.3	3.96	3.95	-0.25
17,331.0	92.33	179.82	12,735.0	-4,878.2	26.1	4,878.2	0.21	0.17	-0.13
17,426.0	91.59	179.85	12,731.7	-4,973.1	26.4	4,973.2	0.78	-0.78	0.03
17,519.0	93.25	180.56	12,727.8	-5,066.0	26.1	5,066.1	1.94	1.78	0.76

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
17,614.0	91.51	180.17	12,723.9	-5,161.0	25.5	5,161.0	1.88	-1.83	-0.41
17,709.0	90.68	179.81	12,722.1	-5,255.9	25.5	5,256.0	0.95	-0.87	-0.38
17,803.0	90.38	180.42	12,721.2	-5,349.9	25.3	5,349.9	0.72	-0.32	0.65
17,898.0	89.27	179.62	12,721.5	-5,444.9	25.2	5,444.9	1.44	-1.17	-0.84
17,992.0	89.21	179.54	12,722.7	-5,538.9	25.9	5,538.9	0.11	-0.06	-0.09
18,086.0	89.51	179.29	12,723.8	-5,632.9	26.9	5,632.9	0.42	0.32	-0.27
18,180.0	89.59	179.23	12,724.5	-5,726.9	28.1	5,726.9	0.11	0.09	-0.06
18,273.0	91.59	178.91	12,723.6	-5,819.9	29.6	5,819.9	2.18	2.15	-0.34
18,368.0	86.22	178.39	12,725.4	-5,914.8	31.9	5,914.8	5.68	-5.65	-0.55
18,462.0	86.24	177.47	12,731.6	-6,008.5	35.2	6,008.6	0.98	0.02	-0.98
18,556.0	88.94	177.55	12,735.5	-6,102.3	39.3	6,102.5	2.87	2.87	0.09
18,650.0	89.71	176.86	12,736.6	-6,196.2	43.9	6,196.4	1.10	0.82	-0.73
18,744.0	89.39	176.52	12,737.4	-6,290.1	49.3	6,290.3	0.50	-0.34	-0.36
18,839.0	90.02	176.78	12,737.8	-6,384.9	54.9	6,385.1	0.72	0.66	0.27
18,933.0	90.00	177.64	12,737.8	-6,478.8	59.5	6,479.1	0.92	-0.02	0.91
19,028.0	90.05	178.34	12,737.8	-6,573.7	62.8	6,574.0	0.74	0.05	0.74
19,123.0	90.57	179.83	12,737.3	-6,668.7	64.3	6,669.0	1.66	0.55	1.57
19,217.0	90.42	179.85	12,736.5	-6,762.7	64.6	6,763.0	0.16	-0.16	0.02
19,312.0	91.33	179.99	12,735.0	-6,857.7	64.7	6,858.0	0.97	0.96	0.15
19,407.0	92.17	180.01	12,732.1	-6,952.7	64.7	6,953.0	0.88	0.88	0.02
19,501.0	91.38	178.90	12,729.2	-7,046.6	65.6	7,046.9	1.45	-0.84	-1.18
19,595.0	90.94	178.14	12,727.3	-7,140.6	68.0	7,140.9	0.93	-0.47	-0.81
19,690.0	91.06	178.52	12,725.6	-7,235.5	70.8	7,235.8	0.42	0.13	0.40
19,784.0	91.08	179.20	12,723.9	-7,329.5	72.7	7,329.8	0.72	0.02	0.72
19,879.0	90.89	180.55	12,722.2	-7,424.4	72.9	7,424.8	1.43	-0.20	1.42
19,973.0	90.57	179.87	12,721.0	-7,518.4	72.5	7,518.8	0.80	-0.34	-0.72
20,067.0	90.53	181.25	12,720.1	-7,612.4	71.6	7,612.8	1.47	-0.04	1.47
20,161.0	90.17	181.20	12,719.6	-7,706.4	69.6	7,706.7	0.39	-0.38	-0.05
20,255.0	90.05	180.43	12,719.4	-7,800.4	68.3	7,800.7	0.83	-0.13	-0.82
20,349.0	90.32	180.01	12,719.1	-7,894.4	67.9	7,894.7	0.53	0.29	-0.45
20,444.0	90.38	179.45	12,718.5	-7,989.4	68.3	7,989.7	0.59	0.06	-0.59
20,538.0	90.02	178.98	12,718.2	-8,083.4	69.6	8,083.7	0.63	-0.38	-0.50
20,632.0	89.14	178.45	12,718.9	-8,177.3	71.7	8,177.7	1.09	-0.94	-0.56
20,727.0	88.52	178.65	12,720.8	-8,272.3	74.1	8,272.6	0.69	-0.65	0.21
20,821.0	88.48	179.15	12,723.3	-8,366.2	75.9	8,366.6	0.53	-0.04	0.53
20,916.0	89.40	178.74	12,725.0	-8,461.2	77.7	8,461.6	1.06	0.97	-0.43
21,010.0	89.42	178.50	12,726.0	-8,555.2	80.0	8,555.6	0.26	0.02	-0.26
21,104.0	89.26	178.93	12,727.1	-8,649.2	82.1	8,649.5	0.49	-0.17	0.46
21,199.0	88.57	179.59	12,728.9	-8,744.1	83.3	8,744.5	1.00	-0.73	0.69
21,292.0	89.55	180.54	12,730.4	-8,837.1	83.2	8,837.5	1.47	1.05	1.02
21,386.0	91.19	178.75	12,729.8	-8,931.1	83.8	8,931.5	2.58	1.74	-1.90
21,480.0	90.78	178.39	12,728.2	-9,025.1	86.1	9,025.5	0.58	-0.44	-0.38
21,574.0	90.20	177.96	12,727.4	-9,119.0	89.1	9,119.4	0.77	-0.62	-0.46

Company:	Concho Resources, Inc.	Local Co-ordinate Reference:	Well Brot Helm Federal Com #602H
Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
21,668.0	91.37	178.09	12,726.1	-9,212.9	92.4	9,213.4	1.25	1.24	0.14
21,762.0	91.24	177.44	12,723.9	-9,306.8	96.0	9,307.3	0.71	-0.14	-0.69
21,857.0	90.56	176.41	12,722.5	-9,401.7	101.1	9,402.2	1.30	-0.72	-1.08
21,952.0	90.43	175.92	12,721.6	-9,496.5	107.5	9,497.0	0.53	-0.14	-0.52
22,047.0	90.14	176.13	12,721.2	-9,591.2	114.1	9,591.9	0.38	-0.31	0.22
22,141.0	90.87	177.51	12,720.3	-9,685.1	119.3	9,685.8	1.66	0.78	1.47
22,235.0	90.68	177.79	12,719.1	-9,779.0	123.1	9,779.7	0.36	-0.20	0.30
22,330.0	90.25	177.32	12,718.3	-9,873.9	127.2	9,874.6	0.67	-0.45	-0.49
22,424.0	90.06	177.09	12,718.0	-9,967.8	131.8	9,968.6	0.32	-0.20	-0.24
22,519.0	89.39	176.19	12,718.5	-10,062.6	137.3	10,063.4	1.18	-0.71	-0.95
22,614.0	89.48	175.65	12,719.4	-10,157.4	144.1	10,158.3	0.58	0.09	-0.57
22,648.0	89.41	175.61	12,719.8	-10,191.3	146.7	10,192.2	0.24	-0.21	-0.12
LAST SVY									
22,660.8	89.41	175.61	12,719.9	-10,204.1	147.7	10,204.9	0.00	0.00	0.00
LTP @ 22660.8'MD, 100'FSL & 1170'FEL									
22,710.0	89.41	175.61	12,720.4	-10,253.1	151.4	10,254.0	0.00	0.00	0.00
Projection to TD @ 22710'MD, 51'FSL & 1166.7'FEL									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FTP (Brot Helm Feder - actual wellpath misses target center by 292.4usft at 12452.7usft MD (12388.6 TVD, -66.5 N, 1.8 E) - Point	0.00	0.00	12,585.0	150.0	-6.9	430,672.50	777,704.20	32° 10' 51.063 N	103° 26' 8.692 W
PBHL (Brot Helm Fed - actual wellpath misses target center by 63.9usft at 22706.4usft MD (12720.4 TVD, -10249.5 N, 151.1 E) - Rectangle (sides W60.0 H3,240.0 D30.0)	-0.29	179.48	12,710.0	-10,254.4	88.3	420,268.10	777,799.40	32° 9' 8.101 N	103° 26' 8.594 W
LTP (Brot Helm Feder - actual wellpath misses target center by 60.4usft at 22656.6usft MD (12719.8 TVD, -10199.8 N, 147.3 E) - Point	0.00	0.00	12,710.0	-10,204.5	87.9	420,318.00	777,799.00	32° 9' 8.595 N	103° 26' 8.594 W

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Project:	Lea County, NM (NAD 27 NME)	TVD Reference:	KB @ 3440.9usft (Latshaw 44)
Site:	(Brot Helm) Sec-35_T-24-S_R-34-E	MD Reference:	KB @ 3440.9usft (Latshaw 44)
Well:	Brot Helm Federal Com #602H	North Reference:	Grid
Wellbore:	ST01	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
902.1	902.0	Rustler			
1,444.2	1,444.0	TOS			
5,222.9	5,219.0	BOS (Fletcher)			
5,503.0	5,499.0	LMAR (Top Delaware)			
5,543.0	5,539.0	BLCN			
6,523.1	6,519.0	CYCN			
8,153.3	8,149.0	BYCN			
9,375.6	9,371.0	Bone Sprg (BSGL)			
10,565.8	10,561.0	FBSG_sand			
11,146.1	11,141.0	SBSG_sand			
11,586.4	11,581.0	SBSG_sand_Base			
12,197.5	12,181.0	TBSG_sand			
13,700.9	12,621.0	WFMP			

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
22,648.0	12,719.8	-10,191.3	146.7	LAST SVY
22,660.8	12,719.9	-10,204.1	147.7	LTP @ 22660.8'MD, 100'FSL & 1170'FEL
22,710.0	12,720.4	-10,253.1	151.4	Projection to TD @ 22710'MD, 51'FSL & 1166.7'FEL

Checked By: _____ Approved By: _____ Date: _____