

C O N C H O

HOBBS OCD

SEP 06 2018

RECEIVED

COG Operating L L C

Lea County, NM (NAD27 NME)

Sec. 12, T 21 S. , R 33 E

Bobwhite 12 State Com 7H

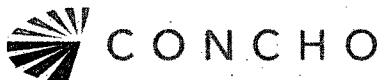
Wellbore #1

Design: Wellbore #1

Standard Survey Report

31 July, 2017





Integrity Directional Services, LLC
Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Bobwhite 12 State Com 7H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3787.70ft
Site:	Sec. 12, T 21 S, R 33 E	MD Reference:	KB=20' @ 3787.70ft
Well:	Bobwhite 12 State Com 7H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Project	Lea County, NM (NAD27 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	Sec. 12, T 21 S, R 33 E		
Site Position:		Northing:	546,532.4000 usft
From:	Map	Easting:	749,682.1000 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.4999217
		Longitude:	-103.5234801
		Grid Convergence:	0.44 °

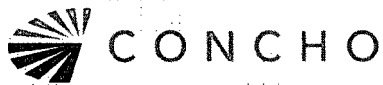
Well	Bobwhite 12 State Com 7H, ACTIVE		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	32.4998979
		Longitude:	-103.5221819
		Ground Level:	3,767.70 ft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	HDGM	7/7/2017	6.78
			Dip Angle
			60.43
			Field Strength
			48,287

Design	Wellbore #1		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			180.39

Survey Program	Date 7/31/2017		
From	To	Survey (Wellbore)	Tool Name
(ft)	(ft)		
100.00	5,682.00	Gyro Surveys (Wellbore #1)	Standard Keeper 104
5,764.00	15,320.00	IDS Surveys (Wellbore #1)	MWD
			Description
			Standard Wireline Keeper ver 1.0.4
			MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(ft)	(ft)	Section	Rate	Rate	Rate
(ft)			(ft)			(ft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.17	0.00	149.60	0.17	0.00	0.00	0.00	0.00	0.00	0.00
Bobwhite 12 State Com 7H FTP									
100.00	0.25	149.60	100.00	-0.19	0.11	0.19	0.25	0.25	0.00
125.00	0.22	53.27	125.00	-0.21	0.18	0.21	1.40	-0.12	-385.32
150.00	0.28	267.65	150.00	-0.18	0.15	0.18	1.91	0.24	-582.48
175.00	0.22	264.70	175.00	-0.19	0.05	0.19	0.25	-0.24	-11.80
200.00	0.40	187.83	200.00	-0.28	-0.01	0.28	1.64	0.72	-307.48
225.00	0.31	143.57	225.00	-0.42	0.01	0.42	1.12	-0.36	-177.04
250.00	0.26	194.80	250.00	-0.53	0.04	0.53	1.00	-0.20	204.92



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Well:	Bobwhite 12 State Com 7H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
275.00	0.14	93.37	275.00	-0.58	0.06	0.58	1.28	-0.48	-405.72	
300.00	0.22	221.73	300.00	-0.62	0.05	0.62	1.30	0.32	513.44	
325.00	0.26	193.95	325.00	-0.71	0.01	0.71	0.49	0.16	-111.12	
350.00	0.36	44.64	350.00	-0.71	0.05	0.71	2.39	0.40	-597.24	
375.00	0.31	292.19	375.00	-0.63	0.04	0.63	2.23	-0.20	-449.80	
400.00	0.10	176.12	400.00	-0.63	-0.02	0.63	1.46	-0.84	-464.28	
425.00	0.40	326.05	425.00	-0.58	-0.07	0.58	1.96	1.20	599.72	
450.00	0.24	339.85	450.00	-0.46	-0.13	0.46	0.71	-0.64	55.20	
475.00	0.39	182.66	475.00	-0.49	-0.15	0.49	2.47	0.60	-628.76	
500.00	0.22	89.16	500.00	-0.58	-0.11	0.58	1.84	-0.68	-374.00	
525.00	0.24	345.41	525.00	-0.52	-0.08	0.52	1.45	0.08	-415.00	
550.00	0.40	8.31	550.00	-0.39	-0.08	0.39	0.81	0.64	91.60	
575.00	0.33	329.39	575.00	-0.24	-0.10	0.24	1.01	-0.28	-155.68	
600.00	0.47	3.18	599.99	-0.07	-0.13	0.08	1.07	0.56	135.16	
625.00	0.19	48.95	624.99	0.06	-0.09	-0.05	1.46	-1.12	183.08	
650.00	0.37	331.88	649.99	0.15	-0.10	-0.15	1.50	0.72	-308.28	
675.00	0.30	297.97	674.99	0.26	-0.20	-0.25	0.83	-0.28	-135.64	
700.00	0.29	333.51	699.99	0.34	-0.28	-0.34	0.72	-0.04	142.16	
725.00	0.33	35.95	724.99	0.46	-0.27	-0.46	1.29	0.16	249.76	
750.00	0.25	205.81	749.99	0.47	-0.25	-0.47	2.31	-0.32	679.44	
775.00	0.34	26.41	774.99	0.48	-0.24	-0.48	2.36	0.36	-717.60	
800.00	0.35	284.75	799.99	0.57	-0.28	-0.57	2.14	0.04	-406.64	
825.00	0.24	55.16	824.99	0.62	-0.31	-0.62	2.15	-0.44	521.64	
850.00	0.14	110.08	849.99	0.64	-0.24	-0.64	0.79	-0.40	219.68	
875.00	0.46	40.78	874.99	0.70	-0.15	-0.70	1.72	1.28	-277.20	
900.00	0.32	11.24	899.99	0.85	-0.07	-0.85	0.96	-0.56	-118.16	
925.00	0.30	49.46	924.99	0.96	0.00	-0.96	0.82	-0.08	152.88	
950.00	0.17	55.23	949.99	1.02	0.08	-1.02	0.53	-0.52	23.08	
975.00	0.11	136.82	974.99	1.03	0.12	-1.03	0.75	-0.24	326.36	
1,000.00	0.18	287.94	999.99	1.02	0.10	-1.02	1.13	0.28	604.48	
1,025.00	0.10	189.76	1,024.99	1.01	0.06	-1.01	0.87	-0.32	-392.72	
1,050.00	0.14	170.92	1,049.99	0.96	0.06	-0.96	0.22	0.16	-75.36	
1,075.00	0.26	32.95	1,074.99	0.98	0.10	-0.98	1.50	0.48	-551.88	
1,100.00	0.14	319.76	1,099.99	1.05	0.11	-1.05	1.03	-0.48	-292.76	
1,125.00	0.12	189.50	1,124.99	1.05	0.08	-1.05	0.94	-0.08	-521.04	
1,150.00	0.05	23.02	1,149.99	1.03	0.08	-1.03	0.68	-0.28	-665.92	
1,175.00	0.31	209.71	1,174.99	0.98	0.05	-0.98	1.44	1.04	-693.24	
1,200.00	0.13	47.92	1,199.99	0.94	0.04	-0.94	1.74	-0.72	-647.16	
1,225.00	0.33	82.92	1,224.99	0.97	0.13	-0.97	0.94	0.80	140.00	
1,250.00	0.12	133.65	1,249.99	0.96	0.23	-0.96	1.08	-0.84	202.92	
1,275.00	0.10	284.27	1,274.99	0.95	0.22	-0.95	0.85	-0.08	602.48	
1,300.00	0.63	235.54	1,299.99	0.88	0.09	-0.88	2.28	2.12	-194.92	
1,325.00	0.29	261.88	1,324.99	0.79	-0.09	-0.79	1.57	-1.36	105.36	

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Survey									
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1,350.00	0.13	243.90	1,349.99	0.77	-0.18	-0.77	0.68	-0.64	-71.92
1,375.00	0.14	6.36	1,374.99	0.79	-0.20	-0.78	0.95	0.04	489.84
1,400.00	0.17	89.86	1,399.99	0.82	-0.16	-0.82	0.83	0.12	334.00
1,425.00	0.50	171.07	1,424.99	0.71	-0.10	-0.71	2.01	1.32	324.84
1,450.00	0.27	221.95	1,449.99	0.56	-0.13	-0.56	1.56	-0.92	203.52
1,475.00	0.30	258.73	1,474.99	0.50	-0.23	-0.50	0.73	0.12	147.12
1,500.00	0.29	247.00	1,499.99	0.46	-0.35	-0.46	0.24	-0.04	-46.92
1,525.00	0.16	241.53	1,524.99	0.42	-0.44	-0.42	0.53	-0.52	-21.88
1,550.00	0.31	275.16	1,549.99	0.41	-0.54	-0.41	0.79	0.60	134.52
1,575.00	0.14	343.84	1,574.99	0.45	-0.61	-0.44	1.16	-0.68	274.72
1,600.00	0.29	151.36	1,599.99	0.42	-0.59	-0.42	1.71	0.60	670.08
1,625.00	0.26	288.17	1,624.99	0.38	-0.62	-0.38	2.05	-0.12	547.24
1,650.00	0.08	300.45	1,649.99	0.41	-0.68	-0.40	0.73	-0.72	49.12
1,675.00	0.06	91.44	1,674.99	0.42	-0.69	-0.41	0.54	-0.08	603.96
1,700.00	0.14	180.05	1,699.99	0.39	-0.67	-0.38	0.60	0.32	354.44
1,725.00	0.23	173.26	1,724.99	0.31	-0.67	-0.30	0.37	0.36	-27.16
1,750.00	0.24	14.50	1,749.99	0.31	-0.65	-0.30	1.85	0.04	-635.04
1,775.00	0.11	348.13	1,774.99	0.38	-0.64	-0.38	0.60	-0.52	-105.48
1,800.00	0.23	71.68	1,799.99	0.42	-0.60	-0.42	0.97	0.48	334.20
1,825.00	0.23	52.75	1,824.99	0.47	-0.51	-0.46	0.30	0.00	-75.72
1,850.00	0.31	138.38	1,849.99	0.45	-0.43	-0.44	1.49	0.32	342.52
1,875.00	0.40	20.54	1,874.98	0.48	-0.35	-0.48	2.44	0.36	-471.36
1,900.00	0.21	101.60	1,899.98	0.55	-0.27	-0.55	1.69	-0.76	324.24
1,925.00	0.48	184.40	1,924.98	0.44	-0.24	-0.43	2.00	1.08	331.20
1,950.00	0.73	126.10	1,949.98	0.24	-0.12	-0.24	2.51	1.00	-233.20
1,975.00	0.83	130.60	1,974.98	0.03	0.15	-0.03	0.47	0.40	18.00
2,000.00	1.21	106.41	1,999.98	-0.17	0.54	0.16	2.27	1.52	-96.76
2,025.00	1.33	105.83	2,024.97	-0.32	1.07	0.31	0.48	0.48	-2.32
2,050.00	1.03	120.80	2,049.97	-0.51	1.54	0.50	1.71	-1.20	59.88
2,075.00	1.25	104.72	2,074.96	-0.70	2.00	0.68	1.54	0.88	-64.32
2,100.00	1.24	121.24	2,099.95	-0.91	2.50	0.89	1.43	-0.04	66.08
2,125.00	1.13	111.59	2,124.95	-1.14	2.96	1.12	0.91	-0.44	-38.60
2,150.00	1.07	103.73	2,149.94	-1.28	3.41	1.26	0.65	-0.24	-31.44
2,175.00	0.95	95.30	2,174.94	-1.36	3.85	1.33	0.76	-0.48	-33.72
2,200.00	0.73	169.41	2,199.94	-1.53	4.08	1.51	4.11	-0.88	296.44
2,225.00	0.92	81.54	2,224.94	-1.66	4.31	1.63	4.61	0.76	-351.48
2,250.00	0.96	96.27	2,249.93	-1.66	4.72	1.62	0.98	0.16	58.92
2,275.00	0.87	101.36	2,274.93	-1.72	5.11	1.68	0.48	-0.36	20.36
2,300.00	0.97	92.94	2,299.93	-1.76	5.51	1.73	0.67	0.40	-33.68
2,325.00	1.19	101.23	2,324.92	-1.83	5.97	1.79	1.08	0.88	33.16
2,350.00	0.90	78.42	2,349.92	-1.84	6.42	1.79	2.01	-1.16	-91.24
2,375.00	1.13	90.06	2,374.91	-1.80	6.86	1.75	1.23	0.92	46.56
2,400.00	0.67	47.56	2,399.91	-1.70	7.21	1.65	3.12	-1.84	-170.00

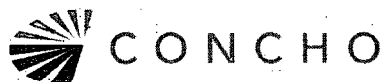


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2,425.00	0.65	54.71	2,424.91	-1.52	7.44	1.47	0.34	-0.08	28.60	
2,450.00	0.55	42.13	2,449.91	-1.35	7.63	1.30	0.66	-0.40	-50.32	
2,475.00	0.55	43.89	2,474.91	-1.17	7.80	1.12	0.07	0.00	7.04	
2,500.00	0.60	39.88	2,499.91	-0.98	7.96	0.93	0.26	0.20	-16.04	
2,525.00	0.76	91.55	2,524.90	-0.89	8.21	0.83	2.44	0.64	206.68	
2,550.00	0.83	41.53	2,549.90	-0.76	8.50	0.70	2.70	0.28	-200.08	
2,575.00	0.55	27.57	2,574.90	-0.52	8.68	0.46	1.30	-1.12	-55.84	
2,600.00	0.54	92.33	2,599.90	-0.41	8.85	0.35	2.34	-0.04	259.04	
2,625.00	0.85	68.15	2,624.90	-0.35	9.14	0.29	1.68	1.24	-96.72	
2,650.00	0.93	60.34	2,649.90	-0.18	9.49	0.12	0.58	0.32	-31.24	
2,675.00	0.82	70.21	2,674.89	-0.02	9.83	-0.05	0.74	-0.44	39.48	
2,700.00	0.79	77.79	2,699.89	0.08	10.17	-0.15	0.44	-0.12	30.32	
2,725.00	0.86	52.62	2,724.89	0.23	10.49	-0.30	1.46	0.28	-100.68	
2,750.00	0.81	58.76	2,749.88	0.43	10.79	-0.51	0.41	-0.20	24.56	
2,775.00	0.79	59.75	2,774.88	0.61	11.09	-0.69	0.10	-0.08	3.96	
2,800.00	1.18	277.32	2,799.88	0.73	10.98	-0.80	7.48	1.56	-569.72	
2,825.00	0.85	48.30	2,824.88	0.89	10.86	-0.96	7.41	-1.32	523.92	
2,850.00	0.91	36.28	2,849.88	1.17	11.12	-1.25	0.77	0.24	-48.08	
2,875.00	0.91	33.89	2,874.87	1.50	11.35	-1.57	0.15	0.00	-9.56	
2,900.00	0.89	29.54	2,899.87	1.83	11.55	-1.91	0.28	-0.08	-17.40	
2,925.00	0.92	37.02	2,924.87	2.16	11.77	-2.24	0.49	0.12	29.92	
2,950.00	0.94	51.92	2,949.86	2.45	12.05	-2.53	0.97	0.08	59.60	
2,975.00	1.08	39.53	2,974.86	2.75	12.36	-2.84	1.03	0.56	-49.56	
3,000.00	1.05	49.99	2,999.86	3.08	12.69	-3.17	0.79	-0.12	41.84	
3,025.00	1.10	48.98	3,024.85	3.39	13.05	-3.47	0.21	0.20	-4.04	
3,050.00	1.56	52.70	3,049.84	3.75	13.50	-3.84	1.87	1.84	14.88	
3,075.00	1.67	63.84	3,074.83	4.12	14.09	-4.21	1.33	0.44	44.56	
3,100.00	1.92	62.66	3,099.82	4.47	14.79	-4.57	1.01	1.00	-4.72	
3,125.00	1.71	74.59	3,124.81	4.76	15.53	-4.87	1.72	-0.84	47.72	
3,150.00	2.08	75.08	3,149.80	4.98	16.32	-5.09	1.48	1.48	1.96	
3,175.00	2.25	70.70	3,174.78	5.26	17.22	-5.37	0.95	0.68	-17.52	
3,200.00	2.34	75.67	3,199.76	5.55	18.18	-5.67	0.87	0.36	19.88	
3,225.00	2.46	67.54	3,224.74	5.88	19.17	-6.01	1.44	0.48	-32.52	
3,250.00	2.37	68.45	3,249.71	6.27	20.15	-6.41	0.39	-0.36	3.64	
3,275.00	2.56	69.26	3,274.69	6.66	21.15	-6.80	0.77	0.76	3.24	
3,300.00	2.65	68.99	3,299.66	7.06	22.21	-7.21	0.36	0.36	-1.08	
3,325.00	2.44	77.29	3,324.64	7.39	23.27	-7.54	1.69	-0.84	33.20	
3,350.00	2.54	80.43	3,349.62	7.60	24.34	-7.76	0.68	0.40	12.56	
3,375.00	2.29	76.42	3,374.59	7.81	25.37	-7.98	1.21	-1.00	-16.04	
3,400.00	1.85	77.45	3,399.58	8.01	26.25	-8.19	1.77	-1.76	4.12	
3,425.00	1.68	81.81	3,424.57	8.15	27.01	-8.33	0.87	-0.68	17.44	
3,450.00	1.63	77.85	3,449.56	8.28	27.72	-8.47	0.50	-0.20	-15.84	
3,475.00	1.50	101.75	3,474.55	8.29	28.38	-8.48	2.64	-0.52	95.60	
3,500.00	1.00	56.80	3,499.54	8.34	28.89	-8.53	4.25	-2.00	-179.80	



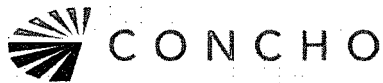
Integrity Directional Services, LLC

Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Bobwhite 12 State Com 7H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3787.70ft
Site:	Sec. 12, T 21 S., R 33 E	MD Reference:	KB=20' @ 3787.70ft
Well:	Bobwhite 12 State Com 7H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
3,525.00	0.75	40.27	3,524.54	8.58	29.18	-8.78	1.41	-1.00	-66.12	
3,550.00	0.83	74.16	3,549.54	8.76	29.46	-8.96	1.87	0.32	135.56	
3,575.00	0.72	50.95	3,574.53	8.91	29.75	-9.11	1.32	-0.44	-92.84	
3,600.00	0.72	45.44	3,599.53	9.12	29.99	-9.32	0.28	0.00	-22.04	
3,625.00	0.93	48.40	3,624.53	9.36	30.25	-9.56	0.86	0.84	11.84	
3,650.00	1.06	34.24	3,649.53	9.69	30.53	-9.89	1.11	0.52	-56.64	
3,675.00	0.74	46.47	3,674.52	9.99	30.78	-10.20	1.49	-1.28	48.92	
3,700.00	0.76	63.39	3,699.52	10.17	31.04	-10.38	0.89	0.08	67.68	
3,725.00	0.69	23.58	3,724.52	10.39	31.25	-10.60	1.99	-0.28	-159.24	
3,750.00	0.54	22.64	3,749.52	10.63	31.36	-10.84	0.60	-0.60	-3.76	
3,775.00	0.50	68.51	3,774.52	10.78	31.50	-10.99	1.63	-0.16	183.48	
3,800.00	0.62	37.24	3,799.51	10.93	31.69	-11.14	1.29	0.48	-125.08	
3,825.00	0.52	48.93	3,824.51	11.11	31.85	-11.33	0.61	-0.40	46.76	
3,850.00	0.72	67.68	3,849.51	11.25	32.09	-11.46	1.13	0.80	75.00	
3,875.00	0.69	13.70	3,874.51	11.45	32.27	-11.67	2.56	-0.12	-215.92	
3,900.00	1.02	42.48	3,899.51	11.76	32.45	-11.98	2.13	1.32	115.12	
3,925.00	0.60	70.78	3,924.51	11.97	32.73	-12.19	2.27	-1.68	113.20	
3,950.00	0.52	40.96	3,949.50	12.10	32.92	-12.32	1.19	-0.32	-119.28	
3,975.00	0.60	78.31	3,974.50	12.21	33.13	-12.43	1.47	0.32	149.40	
4,000.00	0.29	16.69	3,999.50	12.30	33.27	-12.52	2.11	-1.24	-246.48	
4,025.00	0.37	96.49	4,024.50	12.35	33.37	-12.57	1.71	0.32	319.20	
4,050.00	0.25	53.36	4,049.50	12.37	33.50	-12.60	1.01	-0.48	-172.52	
4,075.00	0.33	95.42	4,074.50	12.40	33.61	-12.62	0.88	0.32	168.24	
4,100.00	0.36	120.14	4,099.50	12.35	33.75	-12.58	0.60	0.12	98.88	
4,125.00	0.23	58.03	4,124.50	12.34	33.86	-12.57	1.30	-0.52	-248.44	
4,150.00	0.38	119.75	4,149.50	12.32	33.98	-12.55	1.35	0.60	246.88	
4,175.00	0.37	278.59	4,174.50	12.30	33.97	-12.52	2.95	-0.04	635.36	
4,200.00	0.48	135.98	4,199.50	12.23	33.96	-12.46	3.22	0.44	-570.44	
4,225.00	0.33	207.53	4,224.50	12.09	34.00	-12.32	1.96	-0.60	286.20	
4,250.00	0.47	104.89	4,249.50	12.00	34.07	-12.23	2.52	0.56	-410.56	
4,275.00	0.31	82.20	4,274.50	11.99	34.23	-12.22	0.88	-0.64	-90.76	
4,300.00	0.42	128.36	4,299.50	11.94	34.37	-12.17	1.21	0.44	184.64	
4,325.00	0.37	228.03	4,324.50	11.83	34.38	-12.06	2.42	-0.20	398.68	
4,350.00	0.42	60.64	4,349.50	11.82	34.40	-12.05	3.14	0.20	-669.56	
4,375.00	0.39	45.84	4,374.50	11.92	34.54	-12.15	0.43	-0.12	-59.20	
4,400.00	0.80	34.13	4,399.50	12.13	34.70	-12.36	1.70	1.64	-46.84	
4,425.00	0.52	32.37	4,424.49	12.37	34.86	-12.60	1.12	-1.12	-7.04	
4,450.00	0.70	20.03	4,449.49	12.61	34.97	-12.84	0.89	0.72	-49.36	
4,475.00	0.45	18.46	4,474.49	12.84	35.06	-13.08	1.00	-1.00	-6.28	
4,500.00	0.27	70.20	4,499.49	12.96	35.14	-13.19	1.41	-0.72	206.96	
4,525.00	0.59	17.62	4,524.49	13.10	35.24	-13.33	1.91	1.28	-210.32	
4,550.00	0.81	5.93	4,549.49	13.40	35.30	-13.63	1.04	0.88	-46.76	
4,575.00	0.57	8.06	4,574.49	13.70	35.33	-13.93	0.97	-0.96	8.52	



Integrity Directional Services, LLC
Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Bobwhite 12 State Com 7H
Project:	Lea County, NM (NAD27-NME)	TVD Reference:	KB=20' @ 3787.70ft
Site:	Sec. 12, T 21 S, R 33 E	MD Reference:	KB=20' @ 3787.70ft
Well:	Bobwhite 12 State Com 7H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

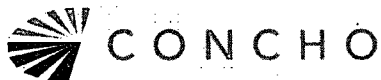
Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,600.00	0.68	41.08	4,599.48	13.93	35.45	-14.17	1.48	0.44	132.08
4,625.00	0.57	50.47	4,624.48	14.12	35.64	-14.36	0.60	-0.44	37.56
4,650.00	0.58	57.42	4,649.48	14.27	35.84	-14.51	0.28	0.04	27.80
4,675.00	0.60	25.63	4,674.48	14.45	36.01	-14.70	1.29	0.08	-127.16
4,700.00	0.59	35.48	4,699.48	14.68	36.14	-14.92	0.41	-0.04	39.40
4,725.00	0.68	48.20	4,724.48	14.88	36.32	-15.13	0.67	0.36	50.88
4,750.00	0.65	42.64	4,749.48	15.08	36.53	-15.33	0.28	-0.12	-22.24
4,775.00	0.55	20.82	4,774.48	15.30	36.67	-15.55	0.99	-0.40	-87.28
4,800.00	0.80	125.13	4,799.47	15.31	36.85	-15.56	4.31	1.00	417.24
4,825.00	0.67	20.92	4,824.47	15.35	37.05	-15.60	4.65	-0.52	-416.84
4,850.00	0.67	50.31	4,849.47	15.58	37.21	-15.83	1.36	0.00	117.56
4,875.00	0.69	23.98	4,874.47	15.81	37.39	-16.06	1.24	0.08	-105.32
4,900.00	0.71	49.16	4,899.47	16.05	37.56	-16.30	1.22	0.08	100.72
4,925.00	0.61	233.65	4,924.47	16.07	37.57	-16.32	5.28	-0.40	-702.04
4,950.00	0.81	41.82	4,949.47	16.12	37.59	-16.38	5.65	0.80	672.68
4,975.00	0.48	71.10	4,974.46	16.29	37.80	-16.54	1.83	-1.32	117.12
5,000.00	0.77	52.76	4,999.46	16.42	38.03	-16.68	1.40	1.16	-73.36
5,025.00	0.71	60.21	5,024.46	16.60	38.30	-16.86	0.45	-0.24	29.80
5,050.00	0.83	53.90	5,049.46	16.79	38.58	-17.05	0.59	0.48	-25.24
5,075.00	0.57	32.49	5,074.46	17.00	38.80	-17.26	1.46	-1.04	-85.64
5,100.00	0.78	58.51	5,099.46	17.19	39.01	-17.45	1.47	0.84	104.08
5,125.00	0.51	59.71	5,124.45	17.34	39.25	-17.60	1.08	-1.08	4.80
5,150.00	0.67	48.36	5,149.45	17.49	39.46	-17.76	0.79	0.64	-45.40
5,175.00	0.63	74.80	5,174.45	17.62	39.70	-17.89	1.20	-0.16	105.76
5,200.00	0.69	49.34	5,199.45	17.76	39.94	-18.03	1.19	0.24	-101.84
5,225.00	0.66	23.59	5,224.45	17.99	40.12	-18.26	1.21	-0.12	-103.00
5,250.00	0.68	184.47	5,249.45	17.97	40.16	-18.24	5.29	0.08	643.52
5,275.00	0.55	53.71	5,274.45	17.90	40.25	-18.17	4.48	-0.52	-523.04
5,300.00	0.72	42.59	5,299.44	18.08	40.45	-18.35	0.84	0.68	-44.48
5,325.00	0.50	128.80	5,324.44	18.13	40.64	-18.40	3.40	-0.88	344.84
5,350.00	0.69	166.17	5,349.44	17.91	40.76	-18.19	1.69	0.76	149.48
5,375.00	0.71	15.56	5,374.44	17.92	40.84	-18.19	5.42	0.08	-602.44
5,400.00	0.68	74.04	5,399.44	18.11	41.02	-18.38	2.72	-0.12	233.92
5,425.00	0.67	109.12	5,424.44	18.10	41.30	-18.38	1.63	-0.04	140.32
5,450.00	0.49	67.70	5,449.44	18.09	41.54	-18.37	1.77	-0.72	-165.68
5,475.00	0.60	80.26	5,474.44	18.16	41.77	-18.44	0.65	0.44	50.24
5,500.00	0.60	335.35	5,499.44	18.30	41.84	-18.58	3.81	0.00	-419.64
5,525.00	0.40	12.08	5,524.43	18.50	41.81	-18.78	1.47	-0.80	146.92
5,550.00	0.50	66.24	5,549.43	18.63	41.93	-18.91	1.68	0.40	216.64
5,575.00	0.44	113.35	5,574.43	18.64	42.11	-18.92	1.52	-0.24	188.44
5,600.00	0.47	232.00	5,599.43	18.54	42.12	-18.82	3.13	0.12	474.60
5,625.00	0.49	99.04	5,624.43	18.46	42.15	-18.74	3.52	0.08	-531.84
5,650.00	0.64	85.05	5,649.43	18.45	42.39	-18.74	0.81	0.60	-55.96

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Bobwhite 12 State Com 7H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3787.70ft
Site:	Sec. 12, T 21 S, R 33 E	MD Reference:	KB=20' @ 3787.70ft
Well:	Bobwhite 12 State Com 7H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,675.00	0.45	122.27	5,674.43	18.41	42.61	-18.70	1.57	-0.76	148.88
5,682.00	0.50	142.60	5,681.43	18.37	42.65	-18.66	2.50	0.71	290.43
5,764.00	0.40	118.60	5,763.43	17.95	43.12	-18.24	0.26	-0.12	-29.27
First MWD Survey @ 5764' MD									
5,858.00	0.30	122.60	5,857.43	17.66	43.62	-17.95	0.11	-0.11	4.26
5,952.00	0.30	129.90	5,951.42	17.37	44.01	-17.67	0.04	0.00	7.77
6,047.00	0.30	86.20	6,046.42	17.23	44.45	-17.53	0.24	0.00	-46.00
6,140.00	0.40	125.50	6,139.42	17.05	44.96	-17.36	0.27	0.11	42.26
6,234.00	0.40	116.40	6,233.42	16.72	45.52	-17.02	0.07	0.00	-9.68
6,329.00	0.30	157.30	6,328.42	16.34	45.91	-16.65	0.28	-0.11	43.05
6,423.00	0.30	161.70	6,422.42	15.88	46.09	-16.19	0.02	0.00	4.68
6,518.00	0.20	156.40	6,517.42	15.49	46.23	-15.80	0.11	-0.11	-5.58
6,612.00	0.40	144.20	6,611.41	15.08	46.49	-15.39	0.22	0.21	-12.98
6,705.00	1.00	337.80	6,704.41	15.56	46.37	-15.88	1.50	0.65	-178.93
6,800.00	1.70	333.60	6,799.38	17.59	45.43	-17.90	0.74	0.74	-4.42
6,893.00	2.40	318.60	6,892.32	20.29	43.53	-20.58	0.94	0.75	-16.13
6,988.00	2.90	314.20	6,987.22	23.46	40.49	-23.73	0.57	0.53	-4.63
7,082.00	2.90	315.80	7,081.10	26.82	37.13	-27.07	0.09	0.00	1.70
7,176.00	2.80	315.00	7,174.99	30.15	33.85	-30.38	0.11	-0.11	-0.85
7,271.00	3.10	318.90	7,269.86	33.73	30.52	-33.93	0.38	0.32	4.11
7,366.00	2.80	318.50	7,364.73	37.40	27.29	-37.58	0.32	-0.32	-0.42
7,460.00	2.50	317.80	7,458.63	40.64	24.40	-40.80	0.32	-0.32	-0.74
7,555.00	3.00	329.60	7,553.52	44.32	21.75	-44.46	0.79	0.53	12.42
7,649.00	2.90	330.70	7,647.40	48.51	19.34	-48.64	0.12	-0.11	1.17
7,743.00	2.80	328.30	7,741.28	52.54	16.97	-52.65	0.17	-0.11	-2.55
7,837.00	2.60	325.50	7,835.18	56.25	14.55	-56.35	0.25	-0.21	-2.98
7,932.00	3.00	336.20	7,930.07	60.30	12.33	-60.38	0.69	0.42	11.26
8,025.00	3.10	335.60	8,022.93	64.82	10.31	-64.88	0.11	0.11	-0.65
8,119.00	2.80	335.50	8,116.81	69.22	8.31	-69.27	0.32	-0.32	-0.11
8,214.00	2.80	337.40	8,211.70	73.47	6.45	-73.52	0.10	0.00	2.00
8,308.00	2.60	335.20	8,305.59	77.53	4.68	-77.56	0.24	-0.21	-2.34
8,403.00	3.40	324.10	8,400.46	81.77	2.12	-81.78	1.04	0.84	-11.68
8,497.00	3.40	325.50	8,494.30	86.32	-1.09	-86.31	0.09	0.00	1.49
8,592.00	3.30	325.00	8,589.13	90.88	-4.26	-90.85	0.11	-0.11	-0.53
8,686.00	3.20	324.40	8,682.98	95.23	-7.34	-95.18	0.11	-0.11	-0.64
8,781.00	2.80	324.70	8,777.85	99.28	-10.22	-99.21	0.42	-0.42	0.32
8,876.00	3.30	323.10	8,872.72	103.36	-13.20	-103.27	0.53	0.53	-1.68
8,970.00	3.40	314.80	8,966.56	107.49	-16.81	-107.37	0.53	0.11	-8.83
9,065.00	3.10	310.90	9,061.40	111.16	-20.75	-111.02	0.39	-0.32	-4.11
9,159.00	2.70	305.20	9,155.28	114.10	-24.48	-113.93	0.52	-0.43	-6.06
9,254.00	3.00	301.80	9,250.17	116.70	-28.42	-116.50	0.36	0.32	-3.58
9,349.00	2.90	305.70	9,345.04	119.41	-32.48	-119.19	0.24	-0.11	4.11
9,444.00	2.60	307.00	9,439.93	122.11	-36.15	-121.86	0.32	-0.32	1.37
9,538.00	3.00	307.80	9,533.82	124.90	-39.80	-124.63	0.43	0.43	0.85

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Bobwhite 12 State Com 7H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3787.70ft
Site:	Sec. 12, T 21 S., R 33 E	MD Reference:	KB=20' @ 3787.70ft
Well:	Bobwhite 12 State Com 7H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,632.00	2.80	306.30	9,627.70	127.77	-43.59	-127.47	0.23	-0.21	-1.60
9,727.00	2.60	314.70	9,722.59	130.66	-47.00	-130.34	0.47	-0.21	8.84
9,822.00	2.00	311.00	9,817.52	133.26	-49.78	-132.92	0.65	-0.63	-3.89
9,917.00	1.80	306.60	9,912.46	135.24	-52.23	-134.88	0.26	-0.21	-4.63
10,003.00	1.30	256.70	9,998.44	135.82	-54.26	-135.45	1.61	-0.58	-58.02
10,035.00	4.50	202.60	10,030.40	134.57	-55.10	-134.20	12.13	10.00	-169.06
10,067.00	8.60	198.10	10,062.18	131.14	-56.32	-130.76	12.90	12.81	-14.06
10,067.03	8.60	198.10	10,062.21	131.14	-56.33	-130.75	0.00	0.00	0.00
Bobwhite 12 State Com 7H KOP									
10,098.00	12.60	193.50	10,092.65	125.65	-57.83	-125.25	13.19	12.91	-14.85
10,129.00	16.70	188.80	10,122.63	117.95	-59.31	-117.55	13.76	13.23	-15.16
10,161.00	20.20	187.40	10,152.98	107.93	-60.72	-107.52	11.02	10.94	-4.38
10,193.00	23.00	186.30	10,182.73	96.23	-62.12	-95.81	8.84	8.75	-3.44
10,224.00	25.10	185.70	10,211.04	83.67	-63.44	-83.24	6.82	6.77	-1.94
10,255.00	27.30	185.20	10,238.85	70.04	-64.73	-69.61	7.13	7.10	-1.61
10,287.00	30.00	185.20	10,266.93	54.77	-66.12	-54.32	8.44	8.44	0.00
10,319.00	32.00	184.80	10,294.36	38.35	-67.56	-37.89	6.28	6.25	-1.25
10,351.00	35.00	184.30	10,321.04	20.74	-68.96	-20.28	9.41	9.38	-1.56
10,382.00	38.40	183.10	10,345.89	2.26	-70.14	-1.79	11.21	10.97	-3.87
10,413.00	41.90	181.70	10,369.59	-17.71	-70.97	18.18	11.66	11.29	-4.52
10,445.00	44.60	179.70	10,392.89	-39.63	-71.23	40.11	9.46	8.44	-6.25
10,477.00	47.00	180.20	10,415.20	-62.57	-71.21	63.04	7.58	7.50	1.56
10,508.00	50.50	179.80	10,435.64	-85.87	-71.21	86.35	11.33	11.29	-1.29
10,540.00	54.60	180.60	10,455.09	-111.27	-71.30	111.75	12.97	12.81	2.50
10,564.08	57.01	180.76	10,468.62	-131.18	-71.54	131.66	10.01	10.00	0.65
North 330° Crossing @ 10564.08' MD/131.66° VS									
10,571.00	57.70	180.80	10,472.36	-137.01	-71.62	137.49	10.01	10.00	0.63
10,603.00	61.20	180.20	10,488.62	-164.56	-71.86	165.04	11.06	10.94	-1.88
10,634.00	64.70	179.90	10,502.72	-192.17	-71.88	192.64	11.32	11.29	-0.97
10,665.00	68.70	179.20	10,514.97	-220.63	-71.65	221.11	13.07	12.90	-2.26
10,696.00	72.90	178.70	10,525.17	-249.89	-71.12	250.37	13.63	13.55	-1.61
10,727.00	75.70	179.20	10,533.56	-279.73	-70.57	280.20	9.16	9.03	1.61
10,758.00	79.30	179.90	10,540.26	-309.99	-70.33	310.45	11.82	11.61	2.26
10,790.00	82.70	180.50	10,545.27	-341.59	-70.45	342.06	10.79	10.63	1.88
10,821.00	86.00	181.10	10,548.32	-372.43	-70.88	372.90	10.82	10.65	1.94
10,884.00	89.40	181.50	10,550.85	-435.36	-72.30	435.83	5.43	5.40	0.63
10,979.00	86.90	181.10	10,553.92	-530.27	-74.46	530.76	2.67	-2.63	-0.42
11,073.00	86.50	181.30	10,559.33	-624.10	-76.42	624.60	0.48	-0.43	0.21
11,165.00	89.10	182.20	10,562.86	-715.98	-79.23	716.49	2.99	2.83	0.98
11,260.00	89.90	180.00	10,563.69	-810.95	-81.06	811.48	2.46	0.84	-2.32
11,354.00	90.60	180.30	10,563.28	-904.95	-81.30	905.47	0.81	0.74	0.32
11,449.00	89.40	178.60	10,563.28	-999.94	-80.39	1,000.46	2.19	-1.26	-1.79
11,544.00	88.80	178.50	10,564.77	-1,094.90	-77.99	1,095.40	0.64	-0.63	-0.11
11,638.00	89.20	178.70	10,566.41	-1,188.85	-75.69	1,189.34	0.48	0.43	0.21



Integrity Directional Services, LLC

Survey Report



Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Bobwhite 12 State Com 7H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3787.70ft
Site:	Sec. 12, T-21 S., R 33 E	MD Reference:	KB=20' @ 3787.70ft
Well:	Bobwhite 12 State Com 7H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Buird Rate (°/100usft)	Turn Rate (°/100usft)
11,733.00	88.60	178.60	10,568.23	-1,283.81	-73.45	1,284.27	0.64	-0.63	-0.11
11,827.00	88.40	178.70	10,570.69	-1,377.75	-71.24	1,378.20	0.24	-0.21	0.11
11,922.00	88.40	178.80	10,573.35	-1,472.69	-69.17	1,473.12	0.11	0.00	0.11
12,016.00	88.90	178.70	10,575.56	-1,566.64	-67.12	1,567.06	0.54	0.53	-0.11
12,111.00	88.80	179.50	10,577.47	-1,661.61	-65.62	1,662.01	0.85	-0.11	0.84
12,206.00	88.70	179.60	10,579.54	-1,756.59	-64.88	1,756.98	0.15	-0.11	0.11
12,300.00	89.00	179.50	10,581.43	-1,850.56	-64.14	1,850.95	0.34	0.32	-0.11
12,395.00	88.70	181.10	10,583.33	-1,945.54	-64.64	1,945.93	1.71	-0.32	1.68
12,490.00	89.70	181.40	10,584.66	-2,040.51	-66.71	2,040.91	1.10	1.05	0.32
12,584.00	90.00	181.40	10,584.91	-2,134.48	-69.01	2,134.89	0.32	0.32	0.00
12,679.00	91.20	181.20	10,583.91	-2,229.45	-71.16	2,229.87	1.28	1.26	-0.21
12,772.00	92.00	180.80	10,581.31	-2,322.40	-72.78	2,322.83	0.96	0.86	-0.43
12,848.80	92.73	180.88	10,578.15	-2,399.12	-73.91	2,399.56	0.95	0.95	0.11
Bobwhite 12 State Com 7H T1 2400'VS									
12,867.00	92.90	180.90	10,577.25	-2,417.30	-74.19	2,417.74	0.95	0.95	0.11
12,962.00	92.00	180.50	10,573.19	-2,512.20	-75.35	2,512.65	1.04	-0.95	-0.42
13,056.00	90.20	180.40	10,571.39	-2,606.18	-76.09	2,606.63	1.92	-1.91	-0.11
13,150.00	87.80	179.90	10,573.03	-2,700.16	-76.34	2,700.61	2.61	-2.55	-0.53
13,245.00	89.60	179.50	10,575.18	-2,795.13	-75.84	2,795.57	1.94	1.89	-0.42
13,339.00	90.00	179.80	10,575.51	-2,889.12	-75.26	2,889.56	0.53	0.43	0.32
13,433.00	89.80	180.00	10,575.68	-2,983.12	-75.10	2,983.56	0.30	-0.21	0.21
13,528.00	87.20	180.30	10,578.16	-3,078.08	-75.35	3,078.52	2.75	-2.74	0.32
13,622.00	86.50	180.50	10,583.33	-3,171.94	-76.00	3,172.38	0.77	-0.74	0.21
13,717.00	86.90	180.70	10,588.80	-3,266.77	-77.00	3,267.22	0.47	0.42	0.21
13,812.00	88.30	179.80	10,592.77	-3,361.69	-77.41	3,362.13	1.75	1.47	-0.95
13,907.00	88.90	180.00	10,595.10	-3,456.66	-77.24	3,457.10	0.67	0.63	0.21
14,002.00	89.50	179.10	10,596.42	-3,551.64	-76.50	3,552.08	1.14	0.63	-0.95
14,096.00	90.90	179.20	10,596.09	-3,645.63	-75.10	3,646.05	1.49	1.49	0.11
14,192.00	90.10	179.00	10,595.26	-3,741.61	-73.60	3,742.02	0.86	-0.83	-0.21
14,284.00	91.70	179.20	10,593.81	-3,833.59	-72.15	3,833.99	1.75	1.74	0.22
14,379.00	91.90	179.40	10,590.83	-3,928.53	-70.99	3,928.92	0.30	0.21	0.21
14,474.00	91.30	178.90	10,588.17	-4,023.49	-69.58	4,023.86	0.82	-0.63	-0.53
14,569.00	91.30	178.50	10,586.02	-4,118.44	-67.43	4,118.80	0.42	0.00	-0.42
14,664.00	92.00	178.40	10,583.28	-4,213.36	-64.86	4,213.70	0.74	0.74	-0.11
14,759.00	90.50	179.20	10,581.21	-4,308.32	-62.87	4,308.64	1.79	-1.58	0.84
14,853.00	89.80	178.80	10,580.97	-4,402.30	-61.23	4,402.61	0.86	-0.74	-0.43
14,948.00	89.20	178.80	10,581.79	-4,497.28	-59.24	4,497.57	0.63	-0.63	0.00
15,043.00	88.70	178.40	10,583.53	-4,592.23	-56.92	4,592.51	0.67	-0.53	-0.42
15,138.00	89.70	178.90	10,584.86	-4,687.19	-54.68	4,687.46	1.18	1.05	0.53
15,201.31	89.90	178.83	10,585.08	-4,750.49	-53.43	4,750.74	0.34	0.32	-0.11
South 330' Crossing @ 15201.31' MD/4750.74'VS									
15,201.51	89.90	178.83	10,585.08	-4,750.69	-53.43	4,750.95	0.00	0.00	0.00
Bobwhite 12 State Com 7H LTP									

Company:	COG Operating L L C	Local Co-ordinate Reference:	Well Bobwhite 12 State Com 7H
Project:	Lea County, NM (NAD27 NME)	TVD Reference:	KB=20' @ 3787.70ft
Site:	Sec. 12, T 21 S, R 33 E	MD Reference:	KB=20' @ 3787.70ft
Well:	Bobwhite 12 State Com 7H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,232.00	90.00	178.80	10,585.11	-4,781.17	-52.80	4,781.42	0.34	0.32	-0.11
15,265.00	90.10	179.10	10,585.08	-4,814.17	-52.19	4,814.41	0.96	0.30	0.91
Final MWD Survey @ 15265'MD									
15,320.00	90.10	179.10	10,584.98	-4,869.16	-51.33	4,869.40	0.00	0.00	0.00
PTD @ 15320'MD - Bobwhite 12 State Com 7H BHL									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
5,764.00	5,763.43	17.95	43.12	First MWD Survey @ 5764'MD
10,564.08	10,468.62	-131.18	-71.54	North 330' Crossing @ 10564.08'MD/131.66'VS
15,201.31	10,585.08	-4,750.49	-53.43	South 330' Crossing @ 15201.31'MD/4750.74'VS
15,265.00	10,585.08	-4,814.17	-52.19	Final MWD Survey @ 15265'MD
15,320.00	10,584.98	-4,869.16	-51.33	PTD @ 15320'MD

Checked By: _____	Approved By: _____	Date: _____
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