

30-015-42760



May 12, 2016

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 29 2016

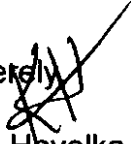
RECEIVED

Concho Resources, Inc.
One Concho Center
600 W. Illinois Avenue
Midland, Texas 79701

Attn: Kanicia Castillo

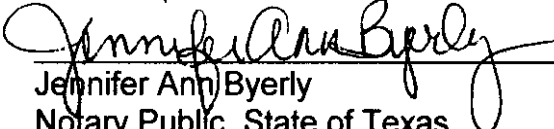
RE: **Burch Keely Unit No 952H**

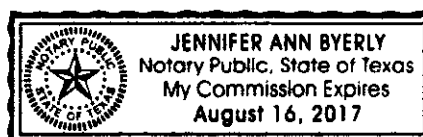
Please find enclosed a copy of the survey from 0' to 830' ran on the above referenced well.

Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 12th day of May, A.D., 2016, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas

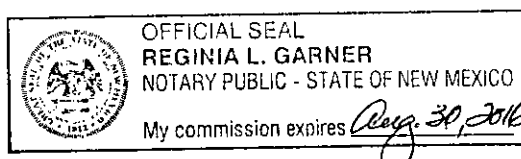




I Andy Askew certify that I am employed by VES Survey International. That I did on the day(s) of 05/05/16 through 05/05/16 conduct or supervise the taking of a Rate Gyro survey from a depth of 0.00 feet to a depth of 830.00 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Vaughn Energy Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of Concho for the Burch Keely Unit Well # 952H API # 30-015-42760 in Eddy County / Parish New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by VES Survey International.

Andy Askew
Service Technician
VES Survey International

The foregoing was acknowledged before me this 23 day of May, 2016.

Notary Public

BURCH KEELY UNIT #952 H

Date	Depth	Deviation	Direction
5/4/2016	118	0.60	
5/4/2016	206	0.90	
5/5/2016	392	0.40	
5/5/2016	625	1.30	
5/7/2016	921	1.20	40.70
5/7/2016	1015	1.30	42.10
5/7/2016	1109	1.30	42.50
5/7/2016	1202	1.30	39.10
5/7/2016	1296	1.40	36.60
5/7/2016	1389	1.40	32.00
5/7/2016	1482	1.30	29.90
5/7/2016	1576	1.30	26.60
5/7/2016	1670	1.20	22.80
5/7/2016	1763	1.20	16.70
5/7/2016	1856	1.50	10.90
5/7/2016	1950	1.50	10.70
5/7/2016	2043	1.50	9.70
5/7/2016	2136	1.60	4.50
5/7/2016	2322	2.90	33.00
5/7/2016	2415	4.20	51.80
5/8/2016	2509	4.70	67.10
5/8/2016	2602	4.00	78.80
5/8/2016	2695	2.80	81.80
5/8/2016	2788	2.70	69.80
5/8/2016	2881	3.80	48.30
5/8/2016	2974	4.00	52.70
5/8/2016	3068	3.00	67.80
5/8/2016	3161	1.70	101.50
5/8/2016	3254	1.40	134.20
5/8/2016	3340	2.90	57.50
5/8/2016	3533	4.50	56.20
5/8/2016	3626	3.50	70.10
5/8/2016	3812	2.70	80.00
5/8/2016	3906	2.30	53.90
5/8/2016	3999	3.10	39.70
5/8/2016	4093	2.90	52.70
5/9/2016	4186	1.70	87.40
5/9/2016	4279	0.80	163.40
5/9/2016	4373	5.40	256.80
5/9/2016	4436	11.60	269.00
5/9/2016	4467	15.00	273.00
5/9/2016	4524	22.00	275.60

Date	Depth	Deviation	Direction
5/9/2016	4560	25.70	275.80
5/9/2016	4591	29.40	275.80
5/10/2016	4653	36.50	272.80
5/10/2016	4747	45.00	268.70
5/10/2016	4841	46.50	268.60
5/10/2016	4872	46.90	268.50
5/10/2016	4903	48.20	268.40
5/10/2016	4934	51.40	269.30
5/10/2016	5028	62.00	270.90
5/10/2016	5090	67.50	271.10
5/10/2016	5121	70.80	271.30
5/11/2016	5189	76.80	272.10
5/11/2016	5221	79.50	272.10
5/11/2016	5252	82.10	272.20
5/11/2016	5314	87.50	271.50
5/11/2016	5345	90.30	270.10
5/11/2016	5376	91.60	269.20
5/11/2016	5383	84.70	272.20
5/11/2016	5501	92.70	269.70
5/11/2016	5688	91.40	269.60
5/12/2016	5781	90.00	269.20
5/12/2016	5874	89.60	268.80
5/12/2016	5967	90.70	269.00
5/12/2016	6060	91.10	269.50
5/12/2016	6246	90.10	269.80
5/12/2016	6339	90.80	269.50
5/12/2016	6432	90.40	269.40
5/12/2016	6525	91.30	269.90
5/12/2016	6619	90.60	269.80
5/12/2016	6806	91.20	270.50
5/13/2016	6836	91.50	270.40
5/13/2016	6929	90.60	270.70
5/13/2016	7022	90.10	270.50
5/13/2016	7115	87.30	272.90
5/13/2016	7209	89.50	271.10
5/13/2016	7302	90.20	271.90
5/14/2016	7395	92.20	272.30
5/14/2016	7488	92.20	267.90
5/14/2016	7676	91.30	268.80
5/14/2016	7837	91.30	270.20
5/14/2016	7852	93.70	269.80
5/14/2016	7862	91.30	269.50
5/15/2016	8048	90.80	270.80
5/15/2016	8142	90.30	270.50
5/15/2016	8235	91.60	271.30

Date	Depth	Deviation	Direction
5/15/2016	8422	91.30	269.40
5/15/2016	8516	91.20	269.70
5/15/2016	8610	91.40	269.60
5/15/2016	8703	90.80	269.90
5/15/2016	8889	91.90	269.50
5/15/2016	8983	91.60	268.70
5/15/2016	9076	91.40	268.60
5/16/2016	9169	90.80	269.80
5/16/2016	9263	90.10	268.30
5/16/2016	9356	90.90	269.00
5/16/2016	9450	89.90	270.10
5/17/2016	9544	90.80	270.80
5/17/2016	9638	90.40	270.10
5/17/2016	9731	91.20	270.30
5/17/2016	9794	91.50	270.90



NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 29 2016

RECEIVED

COG Operating LLC

Eddy County, NM (NAD-27 2015)

Burch Keely Unit #952

API #: 30-015-42760

SHL: 885' FSL, 260' FWL, Sec 24, T17S, R29E, Unit M

PP: 976' FSL, 330' FWL, Sec 23, T17S, R29E, Unit P

BHL: 965' FSL, 429' FWL, Sec 23, T17S, R29E, Unit M

Design: BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M

Standard Survey Report

18 May, 2016





TDS
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 885' FSL, 260' FWL, Sec 24, T17S, R29E, Unit M
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3602.00usft (Silver Oak 3)
Site:	Burch Keely Unit #952	MD Reference:	KB @ 3602.00usft (Silver Oak 3)
Well:	SHL: 885' FSL, 260' FWL, Sec 24, T17S, R29E, Unit M	North Reference:	Grid
Wellbore:	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M	Database:	EDM 5000.1 Single User Db

Project	Eddy County, NM (NAD-27 2015)		
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	Burch Keely Unit #952				
Site Position:		Northing:	660,374.60 usft	Latitude:	32° 48' 54.373 N
From:	Map	Easting:	591,497.60 usft	Longitude:	104° 2' 7.838 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	0.16 °

Well	SHL: 885' FSL, 260' FWL, Sec 24, T17S, R29E, Unit M					
Well Position	+N/-S	0.00 usft	Northing:	660,374.60 usft	Latitude:	32° 48' 54.373 N
	+E/-W	0.00 usft	Easting:	591,497.60 usft	Longitude:	104° 2' 7.838 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,584.00 usft	

Wellbore	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/22/2016	7.34	60.54	48,357

Design	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	270.86	

Survey Program	Date 5/18/2016				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	830.00	VES Gyro #1 (BHL: 970' FSL, 410' FWL, S	VES-ISCWSA-GYRO-3	Biaxial Semi-Cont. Gyro	
921.00	9,886.00	TDS MWD #2 (BHL: 970' FSL, 410' FWL,	MWD	MWD - Standard	

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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.26	112.50	100.00	-0.09	0.21	-0.21	0.26	0.26	0.00	
200.00	0.46	89.12	200.00	-0.17	0.82	-0.82	0.24	0.20	-23.38	
300.00	0.55	43.61	299.99	0.19	1.55	-1.55	0.40	0.09	-45.51	
400.00	0.75	52.82	399.99	0.93	2.41	-2.39	0.23	0.20	9.21	
500.00	0.93	44.49	499.98	1.90	3.50	-3.47	0.22	0.18	-8.33	
600.00	1.15	44.99	599.96	3.19	4.77	-4.73	0.22	0.22	0.50	

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 885' FSL, 260' FWL, Sec 24, T17S, R29E, Unit M
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3602.00usft (Silver Oak 3)
Site:	Burch Keely Unit #952	MD Reference:	KB @ 3602.00usft (Silver Oak 3)
Well:	SHL: 885' FSL, 260' FWL, Sec 24, T17S, R29E, Unit M	North Reference:	Grid
Wellbore:	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M	Database:	EDM 5000.1 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)
700.00	1.41	39.28	699.94	4.85	6.26	-6.19	0.29	0.26	-5.71
830.00	1.19	30.43	829.90	7.26	7.96	-7.85	0.23	-0.17	-6.81
TIE-IN to VES Gyro									
921.00	1.20	40.70	920.88	8.79	9.06	-8.93	0.24	0.01	11.29
First TDS MWD Survey									
1,015.00	1.30	42.10	1,014.86	10.33	10.42	-10.26	0.11	0.11	1.49
1,109.00	1.30	42.50	1,108.84	11.91	11.85	-11.67	0.01	0.00	0.43
1,202.00	1.30	39.10	1,201.81	13.50	13.23	-13.02	0.08	0.00	-3.66
1,296.00	1.40	36.60	1,295.79	15.25	14.59	-14.36	0.12	0.11	-2.66
1,389.00	1.40	32.00	1,388.76	17.13	15.87	-15.61	0.12	0.00	-4.95
1,482.00	1.30	29.90	1,481.73	19.01	16.99	-16.71	0.12	-0.11	-2.26
1,576.00	1.30	26.60	1,575.71	20.89	18.00	-17.69	0.08	0.00	-3.51
1,670.00	1.20	22.80	1,669.69	22.75	18.86	-18.52	0.14	-0.11	-4.04
1,763.00	1.20	16.70	1,762.67	24.58	19.52	-19.15	0.14	0.00	-6.56
1,856.00	1.50	10.90	1,855.64	26.70	20.03	-19.63	0.35	0.32	-6.24
1,950.00	1.50	10.70	1,949.61	29.12	20.49	-20.05	0.01	0.00	-0.21
2,043.00	1.50	9.70	2,042.58	31.52	20.92	-20.44	0.03	0.00	-1.08
2,136.00	1.60	4.50	2,135.54	34.01	21.23	-20.71	0.19	0.11	-5.59
2,229.00	1.80	18.30	2,228.50	36.69	21.79	-21.23	0.49	0.22	14.84
2,322.00	2.90	33.00	2,321.42	40.05	23.53	-22.92	1.34	1.18	15.81
2,415.00	4.20	51.80	2,414.24	44.13	27.49	-26.82	1.86	1.40	20.22
2,509.00	4.70	67.10	2,507.96	47.76	33.74	-33.02	1.37	0.53	16.28
2,602.00	4.00	78.80	2,600.70	49.87	40.43	-39.68	1.21	-0.75	12.58
2,695.00	2.80	81.80	2,693.53	50.83	45.86	-45.09	1.30	-1.29	3.23
2,789.00	2.70	69.80	2,787.42	51.92	50.21	-49.43	0.62	-0.11	-12.77
2,881.00	3.80	48.30	2,879.28	54.69	54.52	-53.69	1.76	1.20	-23.37
2,975.00	4.00	52.70	2,973.06	58.75	59.46	-58.57	0.38	0.21	4.68
3,068.00	3.00	67.80	3,065.89	61.64	64.29	-63.36	1.45	-1.08	16.24
3,161.00	1.70	101.50	3,158.81	62.28	67.89	-66.95	1.98	-1.40	36.24
3,254.00	1.40	134.20	3,251.78	61.22	70.06	-69.13	0.99	-0.32	35.16
3,347.00	2.00	81.60	3,344.74	60.66	72.48	-71.56	1.72	0.65	-56.56
3,440.00	3.90	57.50	3,437.62	62.60	76.75	-75.81	2.40	2.04	-25.91
3,533.00	4.50	56.20	3,530.37	66.33	82.45	-81.45	0.65	0.65	-1.40
3,626.00	3.50	70.10	3,623.14	69.32	88.15	-87.10	1.49	-1.08	14.95
3,719.00	3.30	77.10	3,715.98	70.89	93.43	-92.36	0.50	-0.22	7.53
3,812.00	2.70	80.00	3,808.85	71.86	98.20	-97.11	0.67	-0.65	3.12
3,906.00	2.30	53.90	3,902.77	73.36	101.90	-100.79	1.27	-0.43	-27.77
3,999.00	3.10	39.70	3,995.66	76.40	105.02	-103.86	1.12	0.86	-15.27
4,093.00	2.90	52.70	4,089.54	79.79	108.53	-107.32	0.75	-0.21	13.83
4,186.00	1.70	87.40	4,182.46	81.28	111.78	-110.55	1.92	-1.29	37.31
4,279.00	0.80	163.40	4,275.44	80.72	113.35	-112.12	1.82	-0.97	81.72

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Design:	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M	Database:	EDM 5000.1 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)
4,310.00	1.40	220.90	4,306.44	80.23	113.16	-111.94	3.81	1.94	185.48
4,342.00	3.00	246.20	4,338.42	79.59	112.14	-110.93	5.73	5.00	79.06
4,373.00	5.40	256.80	4,369.33	78.93	109.98	-108.78	8.10	7.74	34.19
4,404.00	8.10	262.70	4,400.11	78.32	106.39	-105.20	8.98	8.71	19.03
4,436.00	11.60	269.00	4,431.64	77.98	100.93	-99.75	11.43	10.94	19.69
4,467.00	15.00	273.00	4,461.80	78.13	93.81	-92.63	11.36	10.97	12.90
4,498.00	18.50	274.60	4,491.48	78.74	84.90	-83.71	11.39	11.29	5.16
4,529.00	22.00	275.60	4,520.56	79.70	74.21	-73.01	11.34	11.29	3.23
4,560.00	25.70	275.80	4,548.91	80.95	61.74	-60.52	11.94	11.94	0.65
4,591.00	29.40	275.80	4,576.39	82.40	47.48	-46.24	11.94	11.94	0.00
4,622.00	33.10	274.70	4,602.89	83.86	31.47	-30.21	12.08	11.94	-3.55
4,653.00	36.50	272.80	4,628.34	85.00	13.82	-12.54	11.51	10.97	-6.13
4,684.00	40.00	270.20	4,652.68	85.49	-5.36	6.64	12.43	11.29	-8.39
4,716.00	43.30	269.10	4,676.59	85.35	-26.62	27.90	10.56	10.31	-3.44
4,747.00	45.00	268.70	4,698.83	84.94	-48.21	49.48	5.56	5.48	-1.29
4,778.00	45.40	268.60	4,720.68	84.42	-70.20	71.46	1.31	1.29	-0.32
4,809.00	46.00	268.70	4,742.33	83.90	-92.38	93.63	1.95	1.94	0.32
4,841.00	46.50	268.60	4,764.46	83.35	-115.49	116.73	1.58	1.56	-0.31
4,872.00	46.90	268.50	4,785.72	82.78	-138.05	139.27	1.31	1.29	-0.32
4,903.00	48.20	268.90	4,806.64	82.26	-160.91	162.13	4.30	4.19	1.29
4,934.00	51.40	269.30	4,826.65	81.89	-184.58	185.79	10.37	10.32	1.29
4,965.00	54.90	269.70	4,845.23	81.68	-209.39	210.59	11.34	11.29	1.29
4,996.00	58.50	270.20	4,862.25	81.66	-235.29	236.49	11.69	11.61	1.61
5,028.00	62.00	270.90	4,878.13	81.93	-263.07	264.27	11.10	10.94	2.19
5,059.00	65.00	271.00	4,891.96	82.39	-290.80	292.01	9.68	9.68	0.32
5,090.00	67.50	271.10	4,904.44	82.91	-319.17	320.38	8.07	8.06	0.32
5,121.00	70.80	271.30	4,915.48	83.51	-348.13	349.35	10.66	10.65	0.65
5,158.00	74.00	272.30	4,926.66	84.62	-383.38	384.60	9.02	8.65	2.70
5,189.00	76.80	272.10	4,934.47	85.78	-413.35	414.59	9.05	9.03	-0.65
5,221.00	79.50	272.10	4,941.05	86.92	-444.64	445.90	8.44	8.44	0.00
5,252.00	82.10	272.20	4,946.00	88.07	-475.22	476.49	8.39	8.39	0.32
5,283.00	84.70	272.20	4,949.56	89.25	-505.99	507.27	8.39	8.39	0.00
5,314.00	87.50	271.50	4,951.67	90.25	-536.90	538.19	9.31	9.03	-2.26
5,345.00	90.30	270.10	4,952.27	90.68	-567.89	569.18	10.10	9.03	-4.52
5,367.31	91.24	269.45	4,951.97	90.60	-590.19	591.49	5.10	4.19	-2.90
As-Drilled PP									
5,376.00	91.60	269.20	4,951.75	90.49	-598.88	600.17	5.10	4.19	-2.90
5,408.00	92.30	268.80	4,950.66	89.94	-630.86	632.14	2.52	2.19	-1.25
5,501.00	92.70	269.50	4,946.61	88.56	-723.76	725.01	0.87	0.43	0.75
5,594.00	92.20	268.70	4,942.63	87.10	-816.66	817.88	1.01	-0.54	-0.86
5,688.00	91.40	269.60	4,939.68	85.70	-910.60	911.79	1.28	-0.85	0.96



TDS
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 885' FSL, 260' FWL, Sec 24; T17S, R29E, Unit M
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3602.00usft (Silver Oak 3)
Site:	Burch Keely Unit #952	MD Reference:	KB @ 3602.00usft (Silver Oak 3)
Well:	SHL: 885' FSL, 260' FWL, Sec 24, T17S, R29E, Unit M	North Reference:	Grid
Wellbore:	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M	Database:	EDM 5000.1 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)
5,781.00	90.00	269.20	4,938.54	84.73	-1,003.59	1,004.75	1.57	-1.51	-0.43
5,874.00	89.60	268.80	4,938.87	83.11	-1,096.57	1,097.70	0.61	-0.43	-0.43
5,967.00	90.70	269.00	4,938.62	81.32	-1,189.55	1,190.64	1.20	1.18	0.22
6,060.00	91.10	269.50	4,937.16	80.11	-1,282.53	1,283.59	0.69	0.43	0.54
6,154.00	90.00	268.80	4,936.26	78.71	-1,376.52	1,377.54	1.39	-1.17	-0.74
6,246.00	90.10	269.80	4,936.18	77.59	-1,468.51	1,469.51	1.09	0.11	1.09
6,339.00	90.80	269.50	4,935.45	77.02	-1,561.50	1,562.48	0.82	0.75	-0.32
6,432.00	90.40	269.40	4,934.48	76.13	-1,654.49	1,655.45	0.44	-0.43	-0.11
6,525.00	91.30	269.90	4,933.10	75.56	-1,747.48	1,748.42	1.11	0.97	0.54
6,619.00	90.60	269.80	4,931.54	75.31	-1,841.47	1,842.39	0.75	-0.74	-0.11
6,713.00	91.60	269.90	4,929.73	75.07	-1,935.45	1,936.36	1.07	1.06	0.11
6,806.00	91.20	270.50	4,927.46	75.39	-2,028.42	2,029.32	0.78	-0.43	0.65
6,836.00	91.50	270.40	4,926.76	75.63	-2,058.41	2,059.31	1.05	1.00	-0.33
6,929.00	90.60	270.10	4,925.05	76.03	-2,151.39	2,152.29	1.02	-0.97	-0.32
7,022.00	90.10	270.50	4,924.48	76.52	-2,244.39	2,245.28	0.69	-0.54	0.43
7,115.00	89.30	270.90	4,924.97	77.66	-2,337.38	2,338.28	0.96	-0.86	0.43
7,209.00	89.50	271.10	4,925.95	79.30	-2,431.36	2,432.28	0.30	0.21	0.21
7,302.00	90.20	271.90	4,926.20	81.73	-2,524.33	2,525.27	1.14	0.75	0.86
7,395.00	92.20	272.30	4,924.25	85.14	-2,617.24	2,618.22	2.19	2.15	0.43
7,488.00	92.20	267.90	4,920.68	85.30	-2,710.15	2,711.12	4.73	0.00	-4.73
7,582.00	93.70	268.80	4,915.84	82.60	-2,803.98	2,804.90	1.86	1.60	0.96
7,676.00	91.30	268.80	4,911.74	80.63	-2,897.86	2,898.75	2.55	-2.55	0.00
7,769.00	91.30	270.20	4,909.63	79.82	-2,990.83	2,991.69	1.50	0.00	1.51
7,862.00	91.30	269.50	4,907.52	79.57	-3,083.81	3,084.66	0.75	0.00	-0.75
7,955.00	91.10	269.60	4,905.57	78.84	-3,176.79	3,177.61	0.24	-0.22	0.11
8,048.00	90.80	270.80	4,904.03	79.17	-3,269.77	3,270.59	1.33	-0.32	1.29
8,142.00	90.30	270.50	4,903.13	80.23	-3,363.76	3,364.58	0.62	-0.53	-0.32
8,235.00	91.60	271.30	4,901.59	81.70	-3,456.73	3,457.57	1.64	1.40	0.86
8,328.00	91.00	271.30	4,899.48	83.80	-3,549.68	3,550.54	0.65	-0.65	0.00
8,422.00	91.30	269.40	4,897.59	84.38	-3,643.66	3,644.51	2.05	0.32	-2.02
8,516.00	91.20	269.70	4,895.54	83.64	-3,737.63	3,738.47	0.34	-0.11	0.32
8,610.00	91.40	269.60	4,893.41	83.07	-3,831.61	3,832.42	0.24	0.21	-0.11
8,703.00	90.80	269.90	4,891.62	82.66	-3,924.59	3,925.39	0.72	-0.65	0.32
8,796.00	90.70	268.70	4,890.40	81.52	-4,017.57	4,018.34	1.29	-0.11	-1.29
8,889.00	91.90	269.50	4,888.29	80.06	-4,110.53	4,111.27	1.55	1.29	0.86
8,983.00	91.60	268.70	4,885.42	78.59	-4,204.48	4,205.18	0.91	-0.32	-0.85
9,076.00	91.40	268.60	4,882.99	76.40	-4,297.42	4,298.08	0.24	-0.22	-0.11
9,169.00	90.80	268.80	4,881.20	74.29	-4,390.38	4,391.00	0.68	-0.65	0.22
9,263.00	90.10	268.30	4,880.47	71.91	-4,484.34	4,484.92	0.92	-0.74	-0.53
9,356.00	90.90	269.00	4,879.65	69.72	-4,577.31	4,577.85	1.14	0.86	0.75
9,450.00	89.90	270.10	4,879.00	68.98	-4,671.31	4,671.82	1.58	-1.06	1.17



TDS
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 885' FSL, 260' FWL, Sec 24, T17S, R29E, Unit M
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3602.00usft (Silver Oak 3)
Site:	Burch Keely Unit #952	MD Reference:	KB @ 3602.00usft (Silver Oak 3)
Well:	SHL: 885' FSL, 260' FWL, Sec 24, T17S, R29E, Unit M	North Reference:	Grid
Wellbore:	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 970' FSL, 410' FWL, Sec 23, T17S, R29E, Unit M	Database:	EDM 5000.1 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)
9,544.00	90.80	270.80	4,878.42	69.72	-4,765.30	4,765.81	1.21	0.96	0.74
9,638.00	90.40	270.10	4,877.44	70.46	-4,859.29	4,859.80	0.86	-0.43	-0.74
9,731.00	91.20	270.30	4,876.14	70.78	-4,952.28	4,952.79	0.89	0.86	0.22
9,794.00	91.50	270.90	4,874.66	71.44	-5,015.26	5,015.77	1.06	0.48	0.95
Final MWD Survey									
9,886.00	91.50	270.90	4,872.25	72.89	-5,107.22	5,107.74	0.00	0.00	0.00
Projection to Bit/TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
830.00	829.90	7.26	7.96	TIE-IN to VES Gyro
921.00	920.88	8.79	9.06	First TDS MWD Survey
5,367.31	4,951.97	90.60	-590.19	As-Drilled PP
9,794.00	4,874.66	71.44	-5,015.26	Final MWD Survey
9,886.00	4,872.25	72.89	-5,107.22	Projection to Bit/TD

Checked By: _____ Approved By: _____ Date: _____