

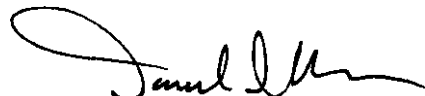


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15-43386

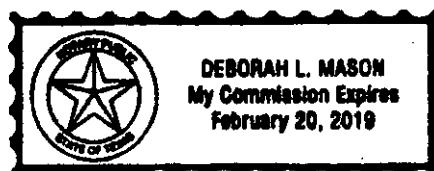
State of New Mexico
County of Eddy

I, Donald D. Mason, certify that: I am employed by Terra Directional Services LLC; that I did on the day(s) of 04/08/16 through 04/16/16 conduct or supervise the taking of a MWD survey from a depth of 511 feet to a depth of 7960 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Terra Directional Services LLC; that I am authorized and qualified to make this report; that this survey was conducted at the request of COG Operating LLC for the Custer 16 State Com #1H Well API 30-015-43386 in Eddy County, New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by Terra Directional Services LLC.


Donald D. Mason
President

State of Texas
County of Burnet

Before me, a notary public, on this day personally appeared Donald D. Mason, known to me to be the person whose name is subscribed to the foregoing document and, being by me first duly sworn, declared that the statements therein contained are true and correct.




Notary Public's Signature



NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 29 2016

RECEIVED

COG Operating LLC

Eddy County, NM (NAD-27 2015)

Custer 16 State Com #1H

API #: 30-015-43386

SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M

PP: 330' FSL, 342' FWL, Sec 16, T19S, R26E, Unit M

BHL: 306' FNL, 352' FWL, Sec 16, T19S, R26E, Unit D

Design: BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D

Standard Survey Report

18 April, 2016





TDS
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3366.00usft (Silver Oak 3)
Site:	Custer 16 State Com #1H	MD Reference:	KB @ 3366.00usft (Silver Oak 3)
Well:	SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M	North Reference:	Grid
Wellbore:	BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D	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	Custer 16 State Com #1H		
Site Position:	From: Map	Northing: 601,480.20 usft	Latitude: 32° 39' 12.802 N
		Easting: 481,408.20 usft	Longitude: 104° 23' 37.465 W
Position Uncertainty:	0.00 usft	Slot Radius: 13.20 in	Grid Convergence: -0.03 °

Well	SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M		
Well Position	+N/-S ' 0.00 usft	Northing: 601,480.20 usft	Latitude: 32° 39' 12.802 N
	+E/-W 0.00 usft	Easting: 481,408.20 usft	Longitude: 104° 23' 37.465 W
Position Uncertainty	0.00 usft	Wellhead Elevation: 0.00 usft	Ground Level: 3,348.00 usft

Wellbore	BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/30/2016	7.50	60.34	48,229

Design	BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D			
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	0.60

Survey Program		Date	4/18/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	432.00	VES Gyro #1 (BHL: 350' FNL, 350' FWL, S	VES-ISCWSA-GYRO-3	Biaxial Semi-Cont. Gyro	
511.00	7,960.00	TDS MWD #2 (BHL: 350' FNL, 350' 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	0.40	89.37	100.00	0.00	0.35	0.01	0.40	0.40	0.00
200.00	0.17	55.56	200.00	0.09	0.82	0.10	0.28	-0.23	-33.81
300.00	0.27	315.25	300.00	0.34	0.78	0.35	0.34	0.10	-100.31
432.00	0.61	280.13	431.99	0.69	-0.13	0.69	0.32	0.26	-26.61
TIE-IN to VES Gyro									



TDS
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3366.00usft (Silver Oak 3)
Site:	Custer 16 State Com #1H	MD Reference:	KB @ 3366.00usft (Silver Oak 3)
Well:	SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M	North Reference:	Grid
Wellbore:	BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D	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)
511.00	1.10	284.10	510.98	0.95	-1.28	0.93	0.62	0.62	5.03
First TDS MWD Survey									
597.00	1.00	264.90	596.97	1.08	-2.83	1.05	0.42	-0.12	-22.33
685.00	2.00	183.20	684.95	-0.52	-3.68	-0.56	2.39	1.14	-92.84
776.00	3.40	172.70	775.84	-4.78	-3.43	-4.82	1.63	1.54	-11.54
836.00	3.90	169.70	835.72	-8.56	-2.84	-8.59	0.89	0.83	-5.00
898.00	4.30	169.40	897.56	-12.92	-2.03	-12.94	0.65	0.65	-0.48
992.00	4.80	169.50	991.27	-20.25	-0.67	-20.25	0.53	0.53	0.11
1,085.00	5.20	164.00	1,083.91	-28.12	1.20	-28.11	0.67	0.43	-5.91
1,179.00	6.00	163.30	1,177.46	-36.92	3.79	-36.88	0.85	0.85	-0.74
1,206.00	6.20	164.00	1,204.31	-39.68	4.60	-39.63	0.79	0.74	2.59
1,301.00	6.20	165.30	1,298.76	-49.57	7.31	-49.49	0.15	0.00	1.37
1,394.00	4.70	164.20	1,391.33	-58.09	9.62	-57.99	1.62	-1.61	-1.18
1,487.00	3.10	163.50	1,484.11	-64.17	11.38	-64.05	1.72	-1.72	-0.75
1,580.00	2.80	162.80	1,576.99	-68.75	12.76	-68.62	0.32	-0.32	-0.75
1,673.00	4.80	166.20	1,669.78	-74.70	14.36	-74.55	2.16	2.15	3.66
1,767.00	4.90	167.40	1,763.45	-82.44	16.18	-82.27	0.15	0.11	1.28
1,860.00	4.90	169.60	1,856.11	-90.22	17.76	-90.03	0.20	0.00	2.37
1,954.00	4.10	186.00	1,949.82	-97.51	18.13	-97.32	1.60	-0.85	17.45
2,048.00	4.00	185.50	2,043.58	-104.12	17.47	-103.93	0.11	-0.11	-0.53
2,141.00	3.40	185.20	2,136.39	-110.09	16.91	-109.91	0.65	-0.65	-0.32
2,235.00	3.30	183.70	2,230.23	-115.57	16.48	-115.39	0.14	-0.11	-1.60
2,328.00	3.30	183.80	2,323.07	-120.91	16.13	-120.74	0.01	0.00	0.11
2,421.00	3.20	183.80	2,415.93	-126.17	15.78	-126.00	0.11	-0.11	0.00
2,515.00	1.40	184.10	2,509.85	-129.94	15.52	-129.77	1.91	-1.91	0.32
2,608.00	0.50	12.60	2,602.84	-130.67	15.53	-130.50	2.04	-0.97	-184.41
2,701.00	0.70	10.30	2,695.83	-129.72	15.72	-129.55	0.22	0.22	-2.47
2,732.00	0.60	11.60	2,726.83	-129.37	15.79	-129.20	0.33	-0.32	4.19
2,764.00	2.10	359.80	2,758.82	-128.62	15.82	-128.45	4.74	4.69	-36.88
2,795.00	4.50	6.00	2,789.77	-126.85	15.94	-126.67	7.82	7.74	20.00
2,826.00	6.90	6.00	2,820.61	-123.78	16.27	-123.61	7.74	7.74	0.00
2,857.00	9.40	359.90	2,851.30	-119.40	16.46	-119.22	8.52	8.06	-19.68
2,888.00	12.00	355.90	2,881.76	-113.65	16.22	-113.48	8.72	8.39	-12.90
2,919.00	15.10	352.30	2,911.89	-106.43	15.45	-106.27	10.36	10.00	-11.61
2,950.00	18.50	352.20	2,941.56	-97.56	14.24	-97.40	10.97	10.97	-0.32
2,981.00	21.90	353.30	2,970.65	-86.94	12.90	-86.80	11.04	10.97	3.55
3,012.00	25.30	354.20	2,999.06	-74.60	11.55	-74.48	11.03	10.97	2.90
3,044.00	29.00	354.60	3,027.52	-60.07	10.13	-59.96	11.58	11.56	1.25
3,075.00	32.70	356.60	3,054.13	-44.23	8.93	-44.13	12.38	11.94	6.45
3,107.00	35.00	359.40	3,080.71	-26.42	8.32	-26.33	8.68	7.19	8.75
3,137.00	38.90	2.10	3,104.68	-8.39	8.58	-8.30	14.08	13.00	9.00



TDS
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3366.00usft (Silver Oak 3)
Site:	Custer 16 State Com #1H	MD Reference:	KB @ 3366.00usft (Silver Oak 3)
Well:	SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M	North Reference:	Grid
Wellbore:	BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D	Survey Calculation Method:	Minimum Curvature
Design:	BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D	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)
3,169.00	42.80	1.90	3,128.88	12.52	9.30	12.62	12.19	12.19	-0.63
3,200.00	46.70	0.90	3,150.89	34.33	9.83	34.43	12.78	12.58	-3.23
3,231.00	50.80	0.40	3,171.33	57.63	10.09	57.74	13.28	13.23	-1.61
3,262.00	54.80	0.40	3,190.07	82.32	10.26	82.42	12.90	12.90	0.00
3,293.00	58.20	1.10	3,207.18	108.16	10.61	108.27	11.13	10.97	2.26
3,324.00	62.20	1.60	3,222.58	135.05	11.24	135.16	12.98	12.90	1.61
3,355.00	65.40	2.30	3,236.26	162.85	12.19	162.97	10.52	10.32	2.26
3,373.67	67.63	2.00	3,243.70	179.96	12.83	180.08	12.03	11.93	-1.63
As-Drilled PP									
3,386.00	69.10	1.80	3,248.25	191.41	13.21	191.54	12.03	11.94	-1.59
3,418.00	73.10	0.80	3,258.61	221.67	13.89	221.81	12.84	12.50	-3.13
3,449.00	77.10	1.60	3,266.58	251.62	14.52	251.75	13.14	12.90	2.58
3,480.00	80.80	0.10	3,272.52	282.03	14.97	282.17	12.85	11.94	-4.84
3,512.00	84.80	358.70	3,276.53	313.77	14.64	313.91	13.23	12.50	-4.38
3,543.00	88.90	358.10	3,278.24	344.71	13.77	344.83	13.37	13.23	-1.94
3,574.00	91.60	0.10	3,278.10	375.70	13.29	375.82	10.84	8.71	6.45
3,605.00	91.30	1.60	3,277.32	406.68	13.75	406.80	4.93	-0.97	4.84
3,667.00	91.60	2.40	3,275.75	468.62	15.91	468.77	1.38	0.48	1.29
3,761.00	91.90	2.80	3,272.88	562.48	20.17	562.66	0.53	0.32	0.43
3,855.00	90.30	1.80	3,271.07	656.39	23.94	656.60	2.01	-1.70	-1.06
3,948.00	90.00	2.20	3,270.83	749.33	27.19	749.57	0.54	-0.32	0.43
4,042.00	91.50	1.40	3,269.60	843.27	30.14	843.54	1.81	1.60	-0.85
4,134.00	91.70	1.60	3,267.03	935.20	32.55	935.49	0.31	0.22	0.22
4,228.00	91.30	0.30	3,264.57	1,029.16	34.11	1,029.46	1.45	-0.43	-1.38
4,321.00	91.20	0.50	3,262.54	1,122.13	34.76	1,122.43	0.24	-0.11	0.22
4,414.00	90.80	0.60	3,260.92	1,215.11	35.65	1,215.42	0.44	-0.43	0.11
4,507.00	90.90	359.20	3,259.54	1,308.10	35.49	1,308.40	1.51	0.11	-1.51
4,601.00	91.40	359.40	3,257.65	1,402.07	34.34	1,402.36	0.57	0.53	0.21
4,694.00	91.60	359.40	3,255.22	1,495.04	33.36	1,495.30	0.22	0.22	0.00
4,788.00	91.90	359.60	3,252.35	1,588.99	32.54	1,589.24	0.38	0.32	0.21
4,881.00	92.50	359.90	3,248.78	1,681.92	32.14	1,682.16	0.72	0.65	0.32
4,974.00	90.90	360.00	3,246.02	1,774.88	32.06	1,775.11	1.72	-1.72	0.11
5,067.00	91.60	0.30	3,243.99	1,867.85	32.30	1,868.09	0.82	0.75	0.32
5,160.00	92.20	0.50	3,240.91	1,960.80	32.95	1,961.04	0.68	0.65	0.22
5,254.00	91.00	0.30	3,238.28	2,054.76	33.61	2,055.00	1.29	-1.28	-0.21
5,347.00	91.30	0.10	3,236.42	2,147.74	33.93	2,147.98	0.39	0.32	-0.22
5,441.00	91.60	0.50	3,234.04	2,241.71	34.42	2,241.94	0.53	0.32	0.43
5,534.00	91.80	0.20	3,231.28	2,334.66	34.99	2,334.90	0.39	0.22	-0.32
5,627.00	92.00	0.30	3,228.19	2,427.61	35.40	2,427.85	0.24	0.22	0.11
5,720.00	90.20	1.10	3,226.41	2,520.58	36.53	2,520.83	2.12	-1.94	0.86
5,813.00	90.20	1.00	3,226.08	2,613.57	38.24	2,613.82	0.11	0.00	-0.11



TDS
Survey Report



Company: COG Operating LLC Local Co-ordinate Reference: Well SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M
Project: Eddy County, NM (NAD-27 2015) TVD Reference: KB @ 3366.00usft (Silver Oak 3)
Site: Custer 16 State Com #1H MD Reference: KB @ 3366.00usft (Silver Oak 3)
Well: SHL: 150' FSL, 330' FWL, Sec 16, T19S, R26E, Unit M North Reference: Grid
Wellbore: BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D Survey Calculation Method: Minimum Curvature
Design: BHL: 350' FNL, 350' FWL, Sec 16, T19S, R26E, Unit D 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)
5,807.00	90.00	1.10	3,225.92	2,707.55	39.96	2,707.82	0.24	-0.21	0.11
6,001.00	90.00	1.40	3,225.92	2,801.53	42.01	2,801.81	0.32	0.00	0.32
6,094.00	90.20	1.50	3,225.76	2,894.50	44.36	2,894.80	0.24	0.22	0.11
6,188.00	91.30	0.40	3,224.53	2,988.47	45.92	2,988.79	1.65	1.17	-1.17
6,281.00	92.10	0.20	3,221.77	3,081.43	46.41	3,081.75	0.89	0.86	-0.22
6,374.00	92.80	0.40	3,217.79	3,174.34	46.89	3,174.66	0.78	0.75	0.22
6,466.00	92.10	0.50	3,213.86	3,266.26	47.62	3,266.58	0.77	-0.76	0.11
6,560.00	92.70	0.80	3,209.92	3,360.17	48.68	3,360.49	0.71	0.64	0.32
6,653.00	92.00	359.40	3,206.11	3,453.09	48.84	3,453.41	1.68	-0.75	-1.51
6,746.00	91.30	359.40	3,203.43	3,546.04	47.87	3,546.35	0.75	-0.75	0.00
6,839.00	91.90	359.30	3,200.84	3,639.00	46.82	3,639.29	0.65	0.65	-0.11
6,933.00	91.30	360.00	3,198.21	3,732.96	46.24	3,733.24	0.98	-0.64	0.74
7,027.00	91.80	0.10	3,195.67	3,826.93	46.32	3,827.20	0.54	0.53	0.11
7,120.00	90.50	360.00	3,193.80	3,919.91	46.40	3,920.18	1.40	-1.40	-0.11
7,214.00	91.20	0.20	3,192.41	4,013.89	46.57	4,014.16	0.77	0.74	0.21
7,307.00	90.00	359.90	3,191.43	4,106.89	46.65	4,107.15	1.33	-1.29	-0.32
7,400.00	90.90	0.30	3,190.70	4,199.88	46.81	4,200.14	1.06	0.97	0.43
7,494.00	91.80	0.30	3,188.49	4,293.85	47.30	4,294.11	0.96	0.96	0.00
7,588.00	89.90	0.10	3,187.09	4,387.84	47.63	4,388.10	2.03	-2.02	-0.21
7,681.00	90.80	0.40	3,186.53	4,480.84	48.04	4,481.09	1.02	0.97	0.32
7,774.00	91.90	0.30	3,184.34	4,573.81	48.61	4,574.07	1.19	1.18	-0.11
7,867.00	90.70	1.30	3,182.23	4,666.77	49.90	4,667.04	1.68	-1.29	1.08
7,905.00	91.00	1.60	3,181.66	4,704.75	50.87	4,705.03	1.12	0.79	0.79
Final MWD Survey									
7,960.00	91.00	1.60	3,180.70	4,759.72	52.40	4,760.01	0.00	0.00	0.00
Projection to Bit/TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
432.00	431.99	0.69	-0.13	TIE-IN to VES Gyrp
511.00	510.98	0.95	-1.28	First TDS MWD Survey
3,373.67	3,243.70	179.98	12.83	As-Drilled PP
7,905.00	3,181.66	4,704.75	50.87	Final MWD Survey
7,960.00	3,180.70	4,759.72	52.40	Projection to Bit/TD

Checked By:

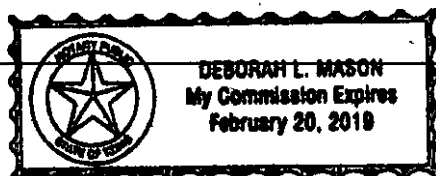
Deborah L. Mason

Approved By:

Paul J. [Signature]

Date:

7/13/2016





April 21, 2016

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

Attn: Kanicia Castillo

RE: Custer 16 State Com No 001H

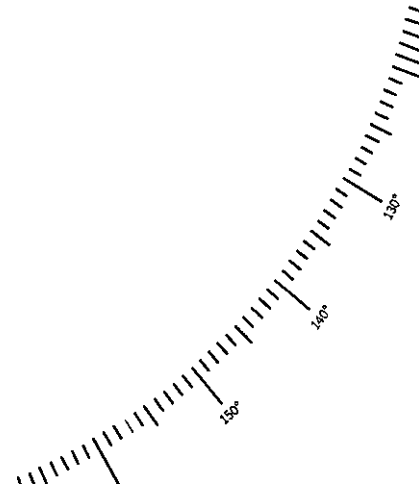
Please find enclosed a copy of the survey from 0' to 432' ran on the above referenced well.

If I can be of any further service, please do not hesitate to call me at 800-606-4976.

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer Byerly". The signature is stylized with a large, looping initial "J" and a long, sweeping horizontal stroke extending to the right.

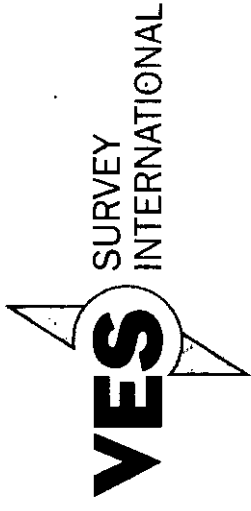
Jennifer Byerly
Operations





Company: Concho

Lease/Well: Custer 16 State Com No/001H



Rig Name: Silver Oak 3

State/County: New Mexico/Eddy

VS-Azi: 0.00 Degrees

Latitude: 32.65356, Longitude: -104.39374

Grid North = True North +0.03 degs (NAD 27)

Grid Correction Applied = +0.03 degs

Depth Reference : RKB = 18 Foot

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: ...6 state com 1h_gyro survey.ut

Minimum Curvature Method

Report Date/Time: 4/21/2016 / 14:09

VES Survey International

West Texas

(432) 563-5444

Surveyor: Gene Heiss

Custer 16 State Com No 001H / API 30-015-43386

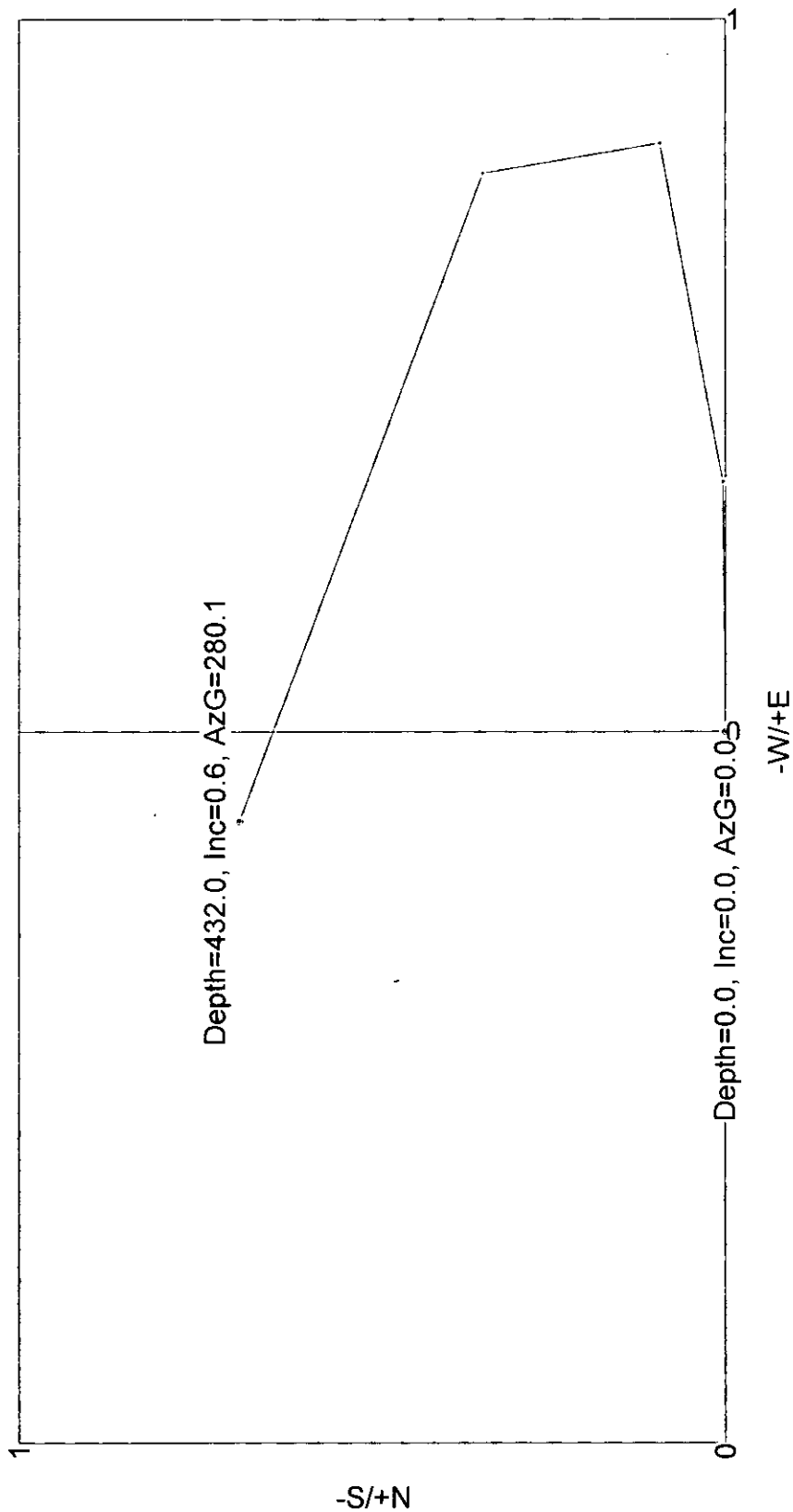
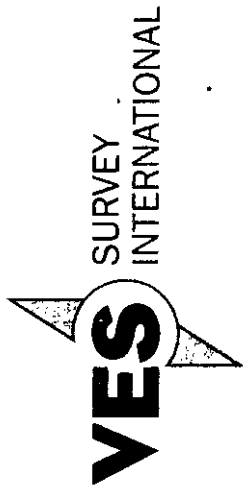
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.40	89.37	100.00	0.00	0.35	0.00	0.35	89.37	0.40
200.00	0.17	55.56	200.00	0.09	0.83	0.09	0.83	83.60	0.28
300.00	0.27	315.25	300.00	0.34	0.78	0.34	0.86	66.24	0.35
432.00	0.61	280.13	431.99	0.69	-0.13	0.69	0.70	349.69	0.32



VES Survey International
West Texas
(432) 563-5444

Surveyor: Gene Heiss

Custer 16 State Com No 001H / API 30-015-43386





PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

April 19, 2016

COG, LLC
One Concho Center
600 W. Illinois Ave.
Midland, TX 79701

RE: Custer 16 St Com 1H
150' FSL & 330' FWL
Sec. 16, T19S, R26E
Eddy County, New Mexico

Dear Sir,

The attached is the Deviation Survey for the above captioned well.

Very truly yours,

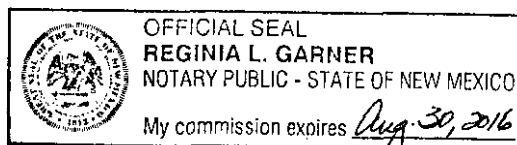
A handwritten signature in cursive script that reads "Chris Graham".

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 19th day of April, 2016.

Notary Public



Custer 16 State Com #1H

Date	Depth	Deviation	Direction
4/6/2016	77	0.50	0.00
4/6/2016	200	0.70	0.00
4/7/2016	319	0.50	0.00
4/8/2016	511	1.10	284.10
4/8/2016	597	1.00	264.90
4/8/2016	685	2.00	183.20
4/8/2016	776	3.40	172.70
4/8/2016	836	3.90	169.70
4/8/2016	998	4.80	169.50
4/8/2016	1085	5.20	164.00
4/9/2016	1301	6.20	165.30
4/9/2016	1394	4.70	164.20
4/9/2016	1580	2.80	162.80
4/9/2016	1673	4.80	166.20
4/9/2016	1767	4.90	167.40
4/9/2016	1860	4.90	169.60
4/10/2016	2048	4.00	185.50
4/10/2016	2141	3.40	185.20
4/10/2016	2235	3.30	183.70
4/10/2016	2328	3.30	183.80
4/10/2016	2421	3.20	187.80
4/10/2016	2608	0.50	12.60
4/10/2016	2701	0.70	10.30
4/10/2016	2764	2.10	359.80
4/10/2016	2826	6.90	6.00
4/10/2016	2919	15.10	352.30
4/10/2016	2950	18.50	352.20
4/11/2016	3075	32.70	356.60
4/11/2016	3168	42.80	1.90
4/11/2016	3362	54.80	0.40
4/11/2016	3386	69.10	1.80
4/11/2016	3418	73.10	0.80
4/11/2016	3449	77.10	1.60
4/11/2016	3480	80.80	0.10
4/11/2016	3512	84.80	358.70
4/11/2016	3543	88.90	358.10
4/11/2016	3574	91.60	0.10
4/11/2016	3605	91.30	1.60
4/11/2016	3667	91.60	2.40
4/11/2016	3761	91.90	2.80
4/11/2016	3855	90.30	1.80
4/11/2016	3948	90.00	2.20

Date	Depth	Deviation	Direction
4/12/2016	4134	91.70	1.60
4/12/2016	4228	91.30	0.30
4/12/2016	4321	91.20	0.50
4/12/2016	4414	90.80	0.60
4/12/2016	4507	90.90	359.20
4/12/2016	4601	91.40	359.40
4/12/2016	4694	91.60	359.40
4/12/2016	4788	91.90	359.60
4/12/2016	4881	92.50	359.90
4/12/2016	4974	90.90	360.00
4/13/2016	5160	92.20	0.50
4/13/2016	5254	91.00	0.30
4/13/2016	5347	91.30	0.10
4/13/2016	5441	91.60	0.50
4/13/2016	5534	91.80	0.20
4/13/2016	5627	92.00	0.30
4/13/2016	5720	90.20	1.10
4/13/2016	5813	90.20	1.00
4/13/2016	5901	90.00	1.10
4/13/2016	6001	90.00	1.40
4/13/2016	6094	90.20	1.50
4/13/2016	6281	92.10	0.20
4/14/2016	6374	92.80	0.40
4/14/2016	6466	92.10	0.50
4/14/2016	6560	92.70	0.80
4/14/2016	6653	92.00	359.40
4/14/2016	6746	91.30	359.40
4/14/2016	6839	91.90	359.40
4/14/2016	6933	91.30	360.00
4/14/2016	7027	91.80	0.10
4/14/2016	7170	90.50	360.00
4/14/2016	7214	91.20	0.20
4/14/2016	7307	90.00	359.90
4/14/2016	7400	90.90	0.30
4/14/2016	7494	91.80	0.30
4/15/2016	7588	89.90	0.10
4/15/2016	7681	90.80	0.40
4/16/2016	7774	91.90	0.30
4/16/2016	7867	90.70	1.30
4/16/2016	7905	91.00	1.60

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	2016-06-15
State:	New Mexico
County:	Eddy
API Number:	3001543386
Operator Name:	COG OPERATING LLC - EBUS
Well Name and Number:	COM 001H
Longitude:	-104.39
Latitude:	32.65
Long/Lat Projection:	
Production Type:	
True Vertical Depth (TVD):	0
Total Water Volume (gal)*:	3,650,196

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 29 2016

Hydraulic Fracturing Fluid Composition:

RECEIVED

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Ingredient Mass lbs	Comments
Fresh Water	Operator	Base Fluid	Fresh Water	7732-18-5	100.00%	88.32487%	30442534	Density = 8.340
HYDROCHLORIC ACID	Halliburton	Solvent	NA	NA			0	
DCA-23003, FDP-S1226-15, FE-1A ACIDIZING COMPOSITION, FE-2A, HAI-OS ACID INHIBITOR, OptiKleen-WF(TM), SAND-COMMON WHITE 100 MESH, SAND-CRC PREMIUM-40/70, SAND-PREMIUM WHITE-40/70	Halliburton	Additive, Concentrate, Corrosion Inhibitor, Friction Reducer, Proppant, Scale Preventer, Surfactant	NA	NA			0	NA
Scalechek(R) SCP-2 Scale Inhibitor	Halliburton	NA	NA	NA			0	NA
CAT 106 SI	Catalyst oilfield Services	Scale Inhibitor	NA	NA			0	NA
			Acetic acid	64-19-7	60.00%	0.01217%	4194	
			Acetic anhydride	108-24-7	100.00%	0.02028%	6989	
			Acrylamide	79-06-1	0.01%	0.00001%	2	
			Acrylamide, sodium acrylate polymer	25987-30-8	30.00%	0.01640%	5651	
			Alcohols, C12-13, ethoxylated	66455-14-9	30.00%	0.01345%	4635	
			Alcohols, C12-16, ethoxylated	68551-12-2	5.00%	0.00224%	773	
			Alcohols, C14-C15, ethoxylated	68951-67-7	30.00%	0.00101%	347	
			Citric acid	77-92-9	60.00%	0.01262%	4351	
			Crystalline silica, quartz	14808-60-7	100.00%	9.45160%	3257640	
			Ethoxylated branched C13 alcohol	78330-21-9	5.00%	0.00273%	942	
			Ethylene oxide	75-21-8	0.01%	0.00001%	2	
			Fatty acids, tall oil	Confidential	30.00%	0.00101%	347	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Glassy calcium magnesium phosphate	65997-17-3	100.00%	0.01741%	5000	
			Hexamethylenetetramine	100-97-0	2.00%	0.02326%	8015	
			Hydrochloric acid	7647-01-0	60.00%	1.21187%	417689	
			Hydrochloric acid, petroleum distillate	64742-47-8	30.00%	0.01640%	5651	
			Methanol	67-56-1	60.00%	0.00201%	694	
			Olefins	Confidential	5.00%	0.00041%	140	
			Phenol / formaldehyde resin	9003-35-4	5.00%	0.05814%	20040	
			Phosphonate	Proprietary	15.00%	0.05814%	1877	
			Propargyl alcohol	107-19-7	10.00%	0.00034%	116	
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00%	0.00101%	347	
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00%	0.00273%	942	
			Sodium diacetate	126-96-5	5.00%	0.00273%	942	
			Sodium perborate tetrahydrate	10486-00-7	100.00%	0.00591%	2038	
			Sorbitan monoleate	9005-65-6	5.00%	0.00273%	942	
			polyoxyethylene derivative	7732-18-5	100.00%	2.11524%	729051	
			Water					

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

All component information listed was obtained from the supplier's Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration's (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.