



CONCHO

NM OIL CONSERVATION
ARTESIA DISTRICT

MAY 17 2017

RECEIVED

COG Operating LLC

Eddy County, NM (NAD-27 2015)

Pinto 36 State Com #7H

API #: 30-015-39973

SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O

PP: 330' FSL, 1712' FEL, Sec 36, T18S, R25E, Unit O

BHL: 255' FNL, 1696' FEL, Sec 36, T18S, R25E, Unit B

Design: BHL: 220' FNL, 1700' FEL, Sec 36, T18S, R25E, Unit B

Standard Survey Report

08 February, 2017





TDS
Survey Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Site: Pinto 36 State Com #7H
Well: SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O
Wellbore: BHL: 220' FNL, 1700' FEL, Sec 36, T18S, R25E, Unit B
Design: BHL: 220' FNL, 1700' FEL, Sec 36, T18S, R25E, Unit B

Local Co-ordinate Reference: Site Pinto 36 State Com #7H
TVD Reference: KB @ 3491.00usft (Silver Oak 3)
MD Reference: KB @ 3491.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

NATURAL CONSERVATION
ARTESIA DISTRICT

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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	Pinto 36 State Com #7H		
Site Position:		Northing:	617,403.80 usft
From:	Map	Easting:	468,855.40 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32° 41' 50.282 N
		Longitude:	104° 26' 4.471 W
		Grid Convergence:	-0.05 °

Well	SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O		
Well Position	+N/-S	0.00 usft	Northing: 617,403.80 usft
	+E/-W	0.00 usft	Easting: 468,855.40 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Ground Level:	3,473.00 usft

Wellbore	BHL: 220' FNL, 1700' FEL, Sec 36, T18S, R25E, Unit B		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	3/30/2016	(°) 7.52
			Dip Angle
			(°) 60.37
			Field Strength
			(nT) 48,250

Design	BHL: 220' FNL, 1700' FEL, Sec 36, T18S, R25E, Unit B		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°) 0.16

Survey Program	Date 2/8/2017		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		
155.00	7,425.00	TDS MWD #1 (BHL: 220' FNL, 1700' FEL,	MWD
			Description
			MWD - Standard

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155.00	1.20	195.00	154.99	-1.57	-0.42	-1.57	0.77	0.77	0.00
First TDS MWD Survey									
242.00	1.80	190.00	241.96	-3.79	-0.89	-3.80	0.71	0.69	-5.75
330.00	3.60	199.10	329.86	-7.77	-2.04	-7.77	2.10	2.05	10.34
418.00	4.00	205.30	417.66	-13.15	-4.25	-13.16	0.65	0.45	7.05
507.00	5.40	206.80	506.36	-19.70	-7.47	-19.72	1.58	1.57	1.69
594.00	5.80	205.90	592.95	-27.30	-11.23	-27.34	0.47	0.46	-1.03



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Wellbore: BHL: 220' FNL, 1700' FEL, Sec 36, T18S, R25E, Unit B
Design: BHL: 220' FNL, 1700' FEL, Sec 36, T18S, R25E, Unit B

Local Co-ordinate Reference: Site Pinto 36 State Com #7H
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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)
686.00	4.70	201.70	684.56	-34.99	-14.66	-35.03	1.27	-1.20	-4.57
777.00	5.00	192.80	775.24	-42.32	-16.92	-42.37	0.89	0.33	-9.78
869.00	5.20	189.80	866.87	-50.34	-18.51	-50.39	0.36	0.22	-3.26
900.00	5.20	190.80	897.74	-53.10	-19.02	-53.15	0.29	0.00	3.23
994.00	5.70	189.80	991.32	-61.89	-20.61	-61.94	0.54	0.53	-1.06
1,088.00	6.20	184.20	1,084.81	-71.55	-21.77	-71.61	0.81	0.53	-5.96
1,150.00	6.20	182.10	1,146.45	-78.23	-22.14	-78.29	0.37	0.00	-3.39
1,244.00	6.20	181.80	1,239.90	-88.38	-22.49	-88.44	0.03	0.00	-0.32
1,307.00	5.30	176.80	1,302.58	-94.68	-22.43	-94.75	1.63	-1.43	-7.94
1,401.00	5.10	177.10	1,396.20	-103.19	-21.98	-103.25	0.21	-0.21	0.32
1,495.00	4.80	177.60	1,489.85	-111.29	-21.60	-111.35	0.32	-0.32	0.53
1,590.00	4.70	176.60	1,584.52	-119.15	-21.21	-119.21	0.14	-0.11	-1.05
1,684.00	4.70	177.80	1,678.20	-126.84	-20.83	-126.90	0.10	0.00	1.28
1,779.00	3.20	169.80	1,772.98	-133.34	-20.21	-133.40	1.68	-1.58	-8.42
1,873.00	1.30	185.90	1,866.90	-136.99	-19.85	-137.04	2.11	-2.02	17.13
1,968.00	0.60	90.70	1,961.89	-138.06	-19.47	-138.12	1.56	-0.74	-100.21
2,031.00	0.60	97.00	2,024.89	-138.11	-18.81	-138.16	0.10	0.00	10.00
2,062.00	2.20	23.60	2,055.88	-137.58	-18.41	-137.63	6.80	5.16	-236.77
2,093.00	5.60	15.10	2,086.80	-135.58	-17.78	-135.63	11.10	10.97	-27.42
2,125.00	9.00	11.80	2,118.54	-131.62	-16.86	-131.66	10.70	10.63	-10.31
2,157.00	12.10	7.20	2,149.99	-125.84	-15.93	-125.88	10.03	9.69	-14.38
2,188.00	15.60	3.10	2,180.09	-118.45	-15.30	-118.49	11.72	11.29	-13.23
2,220.00	19.50	0.80	2,210.59	-108.81	-14.99	-108.85	12.38	12.19	-7.19
2,251.00	23.10	359.40	2,239.47	-97.55	-14.98	-97.59	11.73	11.61	-4.52
2,282.00	26.30	357.70	2,267.63	-84.60	-15.32	-84.65	10.57	10.32	-5.48
2,314.00	29.50	357.70	2,295.91	-69.65	-15.92	-69.69	10.00	10.00	0.00
2,345.00	32.90	359.80	2,322.42	-53.59	-16.26	-53.64	11.51	10.97	6.77
2,377.00	36.00	2.10	2,348.81	-35.50	-15.94	-35.54	10.50	9.69	7.19
2,409.00	39.40	2.50	2,374.12	-15.95	-15.15	-15.99	10.65	10.63	1.25
2,440.00	42.70	1.20	2,397.50	4.39	-14.50	4.35	11.00	10.65	-4.19
2,471.00	44.60	0.60	2,419.93	25.79	-14.17	25.75	6.27	6.13	-1.94
2,503.00	44.60	0.80	2,442.71	48.26	-13.89	48.22	0.44	0.00	0.63
2,534.00	44.40	0.90	2,464.82	69.98	-13.57	69.94	0.68	-0.65	0.32
2,566.00	44.30	1.20	2,487.71	92.35	-13.16	92.31	0.73	-0.31	0.94
2,597.00	44.20	1.10	2,509.91	113.97	-12.73	113.94	0.39	-0.32	-0.32
2,629.00	44.10	1.40	2,532.87	136.26	-12.24	136.22	0.72	-0.31	0.94
2,660.00	46.30	0.50	2,554.72	158.25	-11.88	158.22	7.39	7.10	-2.90
2,689.51	50.17	359.76	2,574.37	180.26	-11.84	180.22	13.26	13.12	-2.51
As-Drilled PP									
2,692.00	50.50	359.70	2,575.96	182.17	-11.84	182.14	13.26	13.13	-2.36
2,723.00	54.60	359.50	2,594.80	206.78	-12.02	206.74	13.24	13.23	-0.65
2,755.00	58.60	1.10	2,612.41	233.49	-11.87	233.45	13.18	12.50	5.00



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Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,786.00	61.80	1.20	2,627.82	260.38	-11.33	260.34	10.33	10.32	0.32
2,818.00	65.50	1.40	2,642.02	289.04	-10.68	289.01	11.58	11.56	0.63
2,849.00	68.90	2.00	2,654.03	317.60	-9.83	317.57	11.11	10.97	1.94
2,880.00	72.40	2.00	2,664.30	346.83	-8.81	346.80	11.29	11.29	0.00
2,912.00	74.70	0.80	2,673.36	377.51	-8.06	377.48	8.04	7.19	-3.75
2,944.00	78.60	359.10	2,680.75	408.63	-8.09	408.61	13.24	12.19	-5.31
2,975.00	82.80	357.70	2,685.76	439.21	-8.95	439.18	14.26	13.55	-4.52
3,006.00	87.00	356.70	2,688.51	470.04	-10.46	470.01	13.92	13.55	-3.23
3,038.00	89.60	357.70	2,689.46	501.98	-12.02	501.95	8.70	8.13	3.13
3,101.00	90.20	358.50	2,689.57	564.95	-14.11	564.91	1.59	0.95	1.27
3,195.00	91.60	359.70	2,688.10	658.92	-15.58	658.88	1.96	1.49	1.28
3,290.00	91.80	0.20	2,685.28	753.88	-15.67	753.83	0.57	0.21	0.53
3,384.00	92.00	0.50	2,682.16	847.83	-15.09	847.78	0.38	0.21	0.32
3,479.00	92.10	1.10	2,678.76	942.76	-13.77	942.71	0.64	0.11	0.63
3,573.00	92.30	1.20	2,675.16	1,036.67	-11.88	1,036.63	0.24	0.21	0.11
3,668.00	91.70	0.40	2,671.84	1,131.60	-10.56	1,131.56	1.05	-0.63	-0.84
3,762.00	91.90	0.60	2,668.89	1,225.55	-9.74	1,225.52	0.30	0.21	0.21
3,857.00	92.20	0.90	2,665.49	1,320.48	-8.49	1,320.45	0.45	0.32	0.32
3,951.00	91.70	359.90	2,662.29	1,414.42	-7.84	1,414.39	1.19	-0.53	-1.06
4,045.00	91.60	0.10	2,659.58	1,508.38	-7.84	1,508.35	0.24	-0.11	0.21
4,140.00	91.40	0.40	2,657.10	1,603.35	-7.42	1,603.32	0.38	-0.21	0.32
4,235.00	91.00	0.50	2,655.11	1,698.32	-6.68	1,698.30	0.43	-0.42	0.11
4,329.00	92.90	360.00	2,651.91	1,792.26	-6.27	1,792.24	2.09	2.02	-0.53
4,423.00	92.70	359.50	2,647.32	1,886.15	-6.68	1,886.13	0.57	-0.21	-0.53
4,518.00	90.80	359.10	2,644.42	1,981.10	-7.84	1,981.07	2.04	-2.00	-0.42
4,613.00	91.20	359.00	2,642.76	2,076.07	-9.41	2,076.03	0.43	0.42	-0.11
4,707.00	91.50	359.40	2,640.54	2,170.03	-10.72	2,169.99	0.53	0.32	0.43
4,801.00	91.90	359.40	2,637.75	2,263.99	-11.71	2,263.94	0.43	0.43	0.00
4,895.00	91.90	359.70	2,634.64	2,357.93	-12.45	2,357.89	0.32	0.00	0.32
4,990.00	89.90	360.00	2,633.15	2,452.91	-12.69	2,452.87	2.13	-2.11	0.32
5,084.00	90.90	0.90	2,632.49	2,546.91	-11.96	2,546.86	1.43	1.06	0.96
5,179.00	91.20	0.80	2,630.75	2,641.88	-10.55	2,641.84	0.33	0.32	-0.11
5,273.00	91.20	1.00	2,628.78	2,735.85	-9.07	2,735.81	0.21	0.00	0.21
5,368.00	91.50	0.70	2,626.54	2,830.81	-7.66	2,830.78	0.45	0.32	-0.32
5,463.00	92.50	0.50	2,623.23	2,925.75	-6.67	2,925.72	1.07	1.05	-0.21
5,558.00	92.20	1.00	2,619.33	3,020.66	-5.43	3,020.63	0.61	-0.32	0.53
5,652.00	92.40	1.00	2,615.56	3,114.57	-3.79	3,114.54	0.21	0.21	0.00
5,747.00	91.00	1.10	2,612.74	3,209.51	-2.05	3,209.49	1.48	-1.47	0.11
5,841.00	91.30	1.20	2,610.85	3,303.47	-0.16	3,303.46	0.34	0.32	0.11
5,935.00	91.50	1.30	2,608.56	3,397.42	1.89	3,397.41	0.24	0.21	0.11
6,029.00	91.70	1.90	2,605.93	3,491.35	4.51	3,491.34	0.67	0.21	0.64
6,124.00	91.40	360.00	2,603.36	3,586.29	6.09	3,586.30	2.02	-0.32	-2.00



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6,187.00	91.40	0.40	2,601.82	3,649.27	6.31	3,649.28	0.63	0.00	0.63
6,281.00	91.90	0.60	2,599.12	3,743.23	7.13	3,743.24	0.57	0.53	0.21
6,376.00	90.40	360.00	2,597.21	3,838.21	7.63	3,838.21	1.70	-1.58	-0.63
6,470.00	90.70	359.80	2,596.31	3,932.20	7.46	3,932.21	0.38	0.32	-0.21
6,565.00	90.90	0.20	2,594.98	4,027.19	7.46	4,027.20	0.47	0.21	0.42
6,660.00	91.20	0.50	2,593.24	4,122.18	8.04	4,122.18	0.45	0.32	0.32
6,754.00	91.60	0.60	2,590.94	4,216.14	8.94	4,216.15	0.44	0.43	0.11
6,849.00	91.90	1.00	2,588.04	4,311.09	10.27	4,311.10	0.53	0.32	0.42
6,943.00	90.20	0.20	2,586.32	4,405.06	11.25	4,405.08	2.00	-1.81	-0.85
7,038.00	90.40	0.50	2,585.82	4,500.06	11.83	4,500.08	0.38	0.21	0.32
7,132.00	90.50	0.60	2,585.09	4,594.05	12.74	4,594.07	0.15	0.11	0.11
7,227.00	90.80	0.80	2,584.01	4,689.04	13.90	4,689.06	0.38	0.32	0.21
7,321.00	90.90	1.20	2,582.61	4,783.01	15.54	4,783.04	0.44	0.11	0.43
7,376.00	90.90	1.30	2,581.75	4,837.99	16.74	4,838.02	0.18	0.00	0.18
Last TDS MWD Survey									
7,425.00	90.90	1.30	2,580.98	4,886.98	17.85	4,887.01	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)	
155.00	154.99	-1.57	-0.42	First TDS MWD Survey
2,689.51	2,574.37	180.26	-11.84	As-Drilled PP
7,376.00	2,581.75	4,837.99	16.74	Last TDS MWD Survey
7,425.00	2,580.98	4,886.98	17.85	Projection to Bit/TD

Checked By: _____ Approved By: _____ Date: _____