



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

15-41930

May 29, 2014

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

RE: SRO State Com #58H
210' FSL & 1935' FWL
Sec. 2, T26S, R28E
Eddy County, New Mexico

NM OIL CONSERVATION
ARTESIA DISTRICT
AUG 04 2014
RECEIVED

Dear Sir,

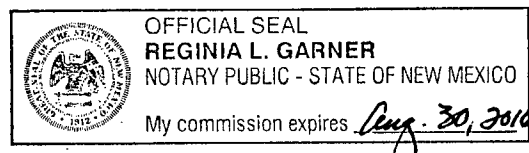
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Eddie LaRue
Operations Manager

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 29th day of May, 2014.

Notary Public

SRO State Com 58H

Date	Depth	Deviation	Direction	TVD	Horiz Disp
5/9/2014	84	0.30	0.00	0.00	0.00
5/9/2014	176	0.20	0.00	0.00	0.00
5/9/2014	294	1.00	0.00	0.00	0.00
5/10/2014	386	1.60	0.00	0.00	0.00
5/10/2014	474	0.80	0.00	0.00	0.00
5/11/2014	716	0.30	0.00	0.00	0.00
5/11/2014	961	0.60	0.00	0.00	0.00
5/11/2014	1205	0.60	0.00	0.00	0.00
5/11/2014	1451	0.30	0.00	0.00	0.00
5/11/2014	1726	0.90	0.00	0.00	0.00
5/12/2014	1971	0.80	0.00	0.00	0.00
5/12/2014	2220	1.10	0.00	0.00	0.00
5/12/2014	2472	0.80	0.00	0.00	0.00
5/12/2014	2573	0.60	0.00	0.00	0.00
5/14/2014	2705	0.60	0.00	0.00	0.00
5/14/2014	2956	0.10	0.00	0.00	0.00
5/14/2014	3208	0.40	0.00	0.00	0.00
5/14/2014	3461	0.90	0.00	0.00	0.00
5/14/2014	3683	0.20	0.00	0.00	0.00
5/14/2014	3904	0.30	0.00	0.00	0.00
5/14/2014	4125	0.50	0.00	0.00	0.00
5/14/2014	4378	1.60	0.00	0.00	0.00
5/14/2014	4536	1.20	0.00	0.00	0.00
5/15/2014	4853	1.50	0.00	0.00	0.00
5/15/2014	5168	0.70	0.00	0.00	0.00
5/15/2014	5458	0.30	0.00	0.00	0.00
5/15/2014	5736	0.60	0.00	0.00	0.00
5/15/2014	6021	0.50	0.00	0.00	0.00
5/15/2014	6178	1.70	0.00	0.00	0.00
5/16/2014	6300	0.20	0.00	0.00	0.00
5/16/2014	6394	0.40	0.00	0.00	0.00
5/16/2014	6583	1.20	0.00	0.00	0.00
5/16/2014	6772	1.00	0.00	0.00	0.00
5/16/2014	6961	0.80	0.00	0.00	0.00
5/16/2014	7087	2.00	0.00	0.00	0.00
5/17/2014	7212	3.20	0.00	0.00	0.00
5/17/2014	7275	3.00	0.00	0.00	0.00
5/17/2014	7328	2.50	221.40	0.00	0.00
5/18/2014	7275	2.10	309.90	0.00	0.00
5/18/2014	7697	3.00	285.50	0.00	0.00
5/18/2014	7705	3.20	281.20	7703.00	39.40
5/18/2014	7736	3.40	281.90	7734.00	39.10
5/18/2014	7799	4.60	344.20	7797.00	36.70

Date	Depth	Deviation	Direction	TVD	Horiz Disp
5/18/2014	7830	7.20	358.20	7828.60	33.60
5/18/2014	7862	9.60	4.50	7860.00	29.00
5/19/2014	7894	12.30	5.80	7891.62	22.90
5/19/2014	7957	19.10	5.20	7952.00	6.10
5/19/2014	8050	28.30	6.10	8037.00	31.50
5/20/2014	8113	33.90	3.50	8091.22	63.92
5/20/2014	8176	43.50	2.10	8140.43	103.13
5/20/2014	8208	47.60	2.00	8162.83	125.96
5/20/2014	8270	57.40	4.70	8220.60	175.00
5/20/2014	8333	68.70	4.70	8229.10	231.10
5/20/2014	8363	73.10	4.50	8238.90	259.60
5/20/2014	8395	77.10	4.40	8247.20	290.30
5/21/2014	8493	88.10	2.80	8259.80	387.30
5/21/2014	8587	89.60	3.30	8261.70	481.30
5/21/2014	8682	90.90	3.20	8261.30	573.30
5/21/2014	8776	87.70	3.00	8262.50	670.20
5/22/2014	9060	90.40	3.60	8262.38	954.17
5/22/2014	9155	88.70	4.40	8263.12	1049.17
5/22/2014	9249	89.10	4.00	8264.93	1143.15
5/22/2014	9438	89.00	4.70	8266.00	1332.10
5/22/2014	9532	89.60	5.10	8267.20	1526.10
5/22/2014	9627	90.60	5.50	8267.00	1521.10
5/22/2014	9723	91.40	5.50	8265.30	1617.00
5/23/2014	10006	88.10	4.80	8267.90	1899.85
5/23/2014	10101	88.00	3.90	8271.13	1994.79
5/23/2014	10180	89.00	2.40	8273.62	2089.75
5/23/2014	10385	89.30	2.90	8277.77	2278.70
5/23/2014	10479	89.50	2.30	8278.60	2372.60
5/23/2014	10574	91.10	2.50	8278.20	2467.60
5/23/2014	10668	90.40	3.70	8276.90	2561.60
5/23/2014	10857	89.10	4.80	8280.13	2750.51
5/23/2014	10952	89.40	4.80	8281.37	2845.49
5/24/2014	11140	90.40	4.70	8280.43	3033.46
5/24/2014	11235	88.70	3.70	8281.13	3128.45
5/24/2014	11330	88.70	3.10	8383.00	3223.00
5/24/2014	11520	88.70	3.10	8287.00	3413.00
5/24/2014	11614	90.00	4.20	8289.00	3507.00
5/24/2014	11709	91.20	4.10	8288.00	3002.30
5/24/2014	11804	90.30	5.40	8287.10	3697.20
5/24/2014	11898	88.90	5.00	8287.42	3791.28
5/25/2014	11993	89.70	5.30	8288.58	3886.25
5/25/2014	12088	90.30	5.10	8288.58	3981.96
5/25/2014	12183	88.60	4.00	8289.48	4076.71
5/25/2014	12227	89.10	3.80	8291.70	4170.19
5/26/2014	12371	90.10	3.90	8292.02	4262.18

Date	Depth	Deviation	Direction	TVD	Horiz Disp
5/26/2014	12561	89.50	4.30	5293.68	4454.17
5/26/2014	12654	91.20	4.60	8293.11	4547.17
5/26/2014	12749	91.90	5.50	8290.00	4642.40



May 23, 2014

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

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 04 2014

RECEIVED

Attn: Kanicia Castillo

RE: **SRO State Com No. 058H**

Please find enclosed a copy of the survey from 0.00' to 7,611.00' ran on the above referenced well.

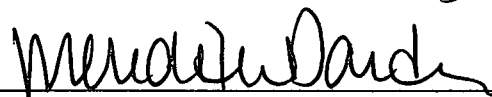
Sincerely,


Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 23rd day of May,
A.D., 2014, by Keith Havelka.




Meredith Darden
Notary Public, State of Texas

Company: COG OPERATING, LLC (CONCHO)

Lease/Well: SRO STATE COM/NO. 058H



Rig Name: SILVER OAK #7

State/County: NEW MEXICO/EDDY

Latitude: 32.06, Longitude: -104.06

GRID North is 0.15 Degrees East of True North

VS-Azi: 3.90 Degrees



Depth Reference : RKB: 18 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 5/23/2014 / 14:02

VES Survey International

West, Texas

(432) 563-5444

Surveyor: Jordan Shelleby

SRO State Com No. 058H / API 30-015-41930

RECEIVED
AUG 04 2014
NM OIL CONSERVATION
ARTESIA DISTRICT

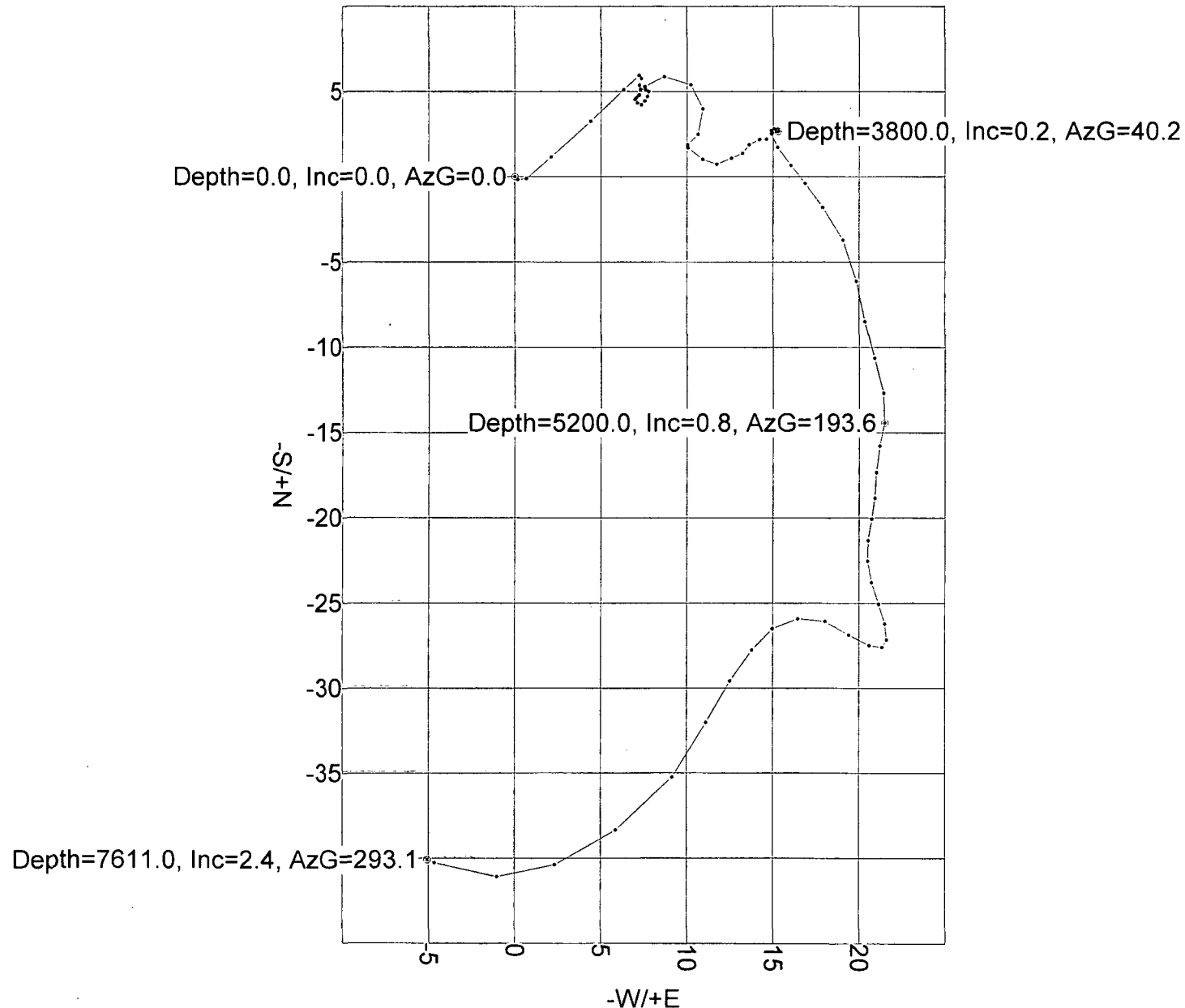
Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	****
100.00	0.27	135.38	100.00	-0.17	0.16	-0.15	0.23	135.38	0.27
200.00	0.45	58.54	200.00	-0.13	0.66	-0.08	0.67	101.07	0.47
300.00	1.78	45.74	299.98	1.16	2.10	1.30	2.40	61.18	1.35
400.00	1.78	48.95	399.93	3.26	4.38	3.55	5.46	53.38	0.10
500.00	1.29	42.82	499.89	5.10	6.31	5.52	8.11	51.08	0.52
600.00	0.15	78.18	599.88	5.95	7.20	6.42	9.34	50.46	1.17
700.00	0.25	182.77	699.88	5.76	7.32	6.24	9.32	51.81	0.32
800.00	0.23	205.63	799.88	5.36	7.22	5.84	8.99	53.41	0.10
900.00	0.18	110.51	899.88	5.12	7.28	5.61	8.90	54.87	0.31
1000.00	0.19	75.06	999.88	5.11	7.59	5.61	9.15	56.05	0.11
1100.00	0.18	172.08	1099.88	5.00	7.77	5.52	9.24	57.25	0.28
1200.00	0.20	217.90	1199.88	4.71	7.69	5.22	9.02	58.51	0.15
1300.00	0.17	202.79	1299.88	4.44	7.53	4.94	8.74	59.46	0.06
1400.00	0.18	236.28	1399.88	4.22	7.34	4.71	8.47	60.11	0.10
1500.00	0.26	331.41	1499.88	4.33	7.10	4.80	8.32	58.62	0.33
1600.00	0.04	276.14	1599.88	4.53	6.95	5.00	8.30	56.89	0.24
1700.00	0.18	50.02	1699.88	4.64	7.04	5.11	8.43	56.60	0.22
1800.00	0.03	67.94	1799.88	4.75	7.18	5.23	8.61	56.51	0.15

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
1900.00	0.03	26.72	1899.88	4.79	7.22	5.27	8.66	56.45	0.02
2000.00	0.65	32.07	1999.88	5.29	7.53	5.79	9.21	54.90	0.62
2100.00	0.99	83.72	2099.87	5.87	8.69	6.45	10.49	55.98	0.78
2200.00	1.01	130.56	2199.85	5.39	10.23	6.07	11.56	62.21	0.80
2300.00	0.96	178.87	2299.84	3.98	10.92	4.71	11.62	69.97	0.81
2400.00	0.82	203.52	2399.83	2.49	10.65	3.20	10.93	76.86	0.40
2500.00	0.38	278.63	2499.82	1.88	10.03	2.56	10.21	79.40	0.81
2600.00	0.48	122.86	2599.82	1.70	10.06	2.38	10.20	80.41	0.85
2700.00	0.78	132.27	2699.82	1.01	10.92	1.75	10.97	84.72	0.32
2800.00	0.38	59.22	2799.81	0.72	11.71	1.52	11.74	86.48	0.77
2900.00	0.70	71.88	2899.81	1.08	12.58	1.93	12.63	85.09	0.33
3000.00	0.14	33.90	2999.81	1.37	13.22	2.27	13.29	84.08	0.59
3100.00	0.58	38.21	3099.80	1.87	13.60	2.79	13.73	82.18	0.44
3200.00	0.35	105.60	3199.80	2.18	14.21	3.14	14.38	81.27	0.55
3300.00	0.17	44.01	3299.80	2.21	14.61	3.20	14.78	81.41	0.31
3400.00	0.40	40.63	3399.80	2.58	14.94	3.59	15.16	80.21	0.22
3500.00	0.24	139.97	3499.80	2.68	15.30	3.72	15.53	80.06	0.49
3600.00	0.22	321.06	3599.80	2.67	15.31	3.71	15.54	80.10	0.45
3700.00	0.15	178.15	3699.80	2.69	15.20	3.72	15.43	79.96	0.35
3800.00	0.16	40.22	3799.80	2.67	15.29	3.70	15.52	80.10	0.28
3900.00	0.14	278.95	3899.80	2.79	15.26	3.82	15.51	79.63	0.26
4000.00	0.09	264.71	3999.80	2.80	15.06	3.82	15.32	79.46	0.06
4100.00	0.14	235.15	4099.80	2.73	14.89	3.73	15.14	79.62	0.07
4200.00	0.20	144.57	4199.80	2.52	14.89	3.53	15.10	80.40	0.24
4300.00	0.81	157.72	4299.79	1.73	15.26	2.76	15.36	83.54	0.62
4400.00	0.74	128.84	4399.78	0.67	16.03	1.76	16.05	87.61	0.39
4500.00	0.83	154.19	4499.77	-0.39	16.85	0.76	16.86	91.33	0.36
4600.00	1.16	136.79	4599.76	-1.78	17.86	-0.56	17.95	95.70	0.45
4700.00	1.48	156.92	4699.73	-3.71	19.06	-2.40	19.42	101.01	0.55
4800.00	1.43	167.74	4799.70	-6.11	19.83	-4.75	20.75	107.12	0.28
4900.00	1.35	167.95	4899.67	-8.48	20.34	-7.08	22.04	112.63	0.08
5000.00	1.19	162.74	4999.65	-10.63	20.90	-9.18	23.45	116.95	0.19
5100.00	1.24	168.20	5099.62	-12.68	21.43	-11.19	24.90	120.62	0.13
5200.00	0.81	193.60	5199.61	-14.43	21.49	-12.93	25.88	123.88	0.62
5300.00	0.77	189.37	5299.60	-15.77	21.21	-14.29	26.43	126.64	0.07
5400.00	1.03	185.13	5399.59	-17.33	21.02	-15.86	27.25	129.51	0.27
5500.00	0.70	181.84	5499.57	-18.84	20.92	-17.37	28.15	132.00	0.34
5600.00	0.74	194.29	5599.57	-20.08	20.74	-18.62	28.87	134.07	0.16
5700.00	0.72	184.07	5699.56	-21.33	20.54	-19.89	29.61	136.09	0.13

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
5800.00	0.66	178.10	5799.55	-22.53	20.51	-21.09	30.47	137.69	0.10
5900.00	0.82	162.97	5899.54	-23.79	20.74	-22.33	31.56	138.92	0.26
6000.00	0.72	161.18	5999.53	-25.08	21.15	-23.58	32.81	139.85	0.11
6100.00	0.66	164.36	6099.53	-26.23	21.51	-24.70	33.92	140.64	0.07
6200.00	0.45	189.50	6199.52	-27.17	21.60	-25.64	34.71	141.51	0.32
6300.00	0.22	255.20	6299.52	-27.60	21.35	-26.09	34.90	142.28	0.41
6400.00	0.67	284.64	6399.52	-27.50	20.60	-26.04	34.36	143.16	0.49
6500.00	0.90	307.33	6499.51	-26.88	19.41	-25.50	33.15	144.16	0.39
6600.00	0.96	292.52	6599.50	-26.08	18.01	-24.79	31.69	145.37	0.25
6700.00	0.93	258.55	6699.48	-25.92	16.44	-24.74	30.69	147.62	0.55
6800.00	0.92	237.18	6799.47	-26.51	14.97	-25.43	30.45	150.55	0.34
6900.00	1.10	212.16	6899.45	-27.76	13.78	-26.76	30.99	153.60	0.47
7000.00	1.45	217.21	6999.43	-29.59	12.50	-28.67	32.12	157.09	0.37
7100.00	1.78	203.59	7099.39	-32.02	11.11	-31.19	33.89	160.86	0.50
7200.00	2.57	216.21	7199.32	-35.25	9.17	-34.55	36.42	165.42	0.92
7300.00	2.71	236.86	7299.21	-38.35	5.87	-37.86	38.80	171.30	0.96
7400.00	2.01	245.21	7399.13	-40.38	2.30	-40.13	40.44	176.74	0.78
7500.00	1.99	270.78	7499.07	-41.09	-1.03	-41.06	41.10	181.44	0.89
7600.00	2.36	292.63	7599.00	-40.27	-4.67	-40.50	40.54	186.61	0.90
7611.00	2.36	293.13	7609.99	-40.10	-5.09	-40.35	40.42	187.23	0.20



VES Survey International
West, Texas
(432) 563-5444
Surveyor: Jordan Shelleby
SRO State Com No. 058H / API 30-015-41930



V.E.S. Survey Date: 05/18/2014



NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 14

RECEIVED

COG Operating, LLC.

Eddy County, N.M.

Section 2-26S-28E SRO State #58H

SRO State #58H

Original Hole

Design: Original Hole

Standard Survey Report

27 May, 2014





Stryker Directional Survey Report



Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well SRO State #58H
Project:	Eddy County, N.M.	TVD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Site:	Section 2-26S-28E SRO State #58H	MD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Well:	SRO State #58H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

Project	Eddy County, N.M.		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Ground Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Section 2-26S-28E SRO State #58H		
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Site Position:		Northing:	387,468.70 usft	Latitude:	32° 3' 53.898 N
From:	Map	Easting:	584,744.40 usft	Longitude:	104° 3' 35.161 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well	SRO State #58H				
Well Position	+N/-S	0.0 usft	Northing:	387,468.70 usft	Latitude: 32° 3' 53.898 N
	+E/-W	0.0 usft	Easting:	584,744.40 usft	Longitude: 104° 3' 35.161 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	0.0 usft	Ground Level: 2,964.4 usft

Wellbore	Original Hole				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/17/2014	7.45	59.89	48,187

Design	Original Hole				
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Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	3.90

Survey Program		Date	5/27/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	7,611.0	Ves Gyro Survey #1 (Original Hole)	SRG-GYRO-MS	surface readout gyro multishot	
7,705.0	12,802.0	MWD Survey #2 (Original Hole)	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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.27	135.38	100.0	-0.2	0.2	-0.2	0.27	0.27	0.00
200.0	0.45	58.54	200.0	-0.1	0.7	-0.1	0.47	0.18	-76.84
300.0	1.78	45.74	300.0	1.2	2.1	1.3	1.34	1.33	-12.80
400.0	1.78	48.95	399.9	3.3	4.4	3.6	0.10	0.00	3.21
500.0	1.29	42.82	499.9	5.1	6.3	5.5	0.52	-0.49	-6.13
600.0	0.15	78.18	599.9	6.0	7.2	6.4	1.17	-1.14	35.36
700.0	0.25	182.77	699.9	5.8	7.3	6.3	0.32	0.10	104.59
800.0	0.23	205.63	799.9	5.4	7.2	5.9	0.10	-0.02	22.86
900.0	0.18	110.51	899.9	5.1	7.3	5.6	0.30	-0.05	-95.12



Stryker Directional Survey Report



Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well SRO State #58H
Project:	Eddy County, N.M.	TVD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Site:	Section 2-26S-28E SRO State #58H	MD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Well:	SRO State #58H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
1,000.0	0.19	75.06	999.9	5.1	7.6	5.6	0.11	0.01	-35.45
1,100.0	0.18	172.08	1,099.9	5.0	7.8	5.5	0.28	-0.01	97.02
1,200.0	0.20	217.90	1,199.9	4.7	7.7	5.2	0.15	0.02	45.82
1,300.0	0.17	202.79	1,299.9	4.4	7.5	4.9	0.06	-0.03	-15.11
1,400.0	0.18	236.28	1,399.9	4.2	7.4	4.7	0.10	0.01	33.49
1,500.0	0.26	331.41	1,499.9	4.3	7.1	4.8	0.33	0.08	95.13
1,600.0	0.04	276.14	1,599.9	4.5	7.0	5.0	0.24	-0.22	-55.27
1,700.0	0.18	50.02	1,699.9	4.6	7.1	5.1	0.21	0.14	133.88
1,800.0	0.03	67.94	1,799.9	4.7	7.2	5.2	0.15	-0.15	17.92
1,900.0	0.03	26.72	1,899.9	4.8	7.2	5.3	0.02	0.00	-41.22
2,000.0	0.65	32.07	1,999.9	5.3	7.6	5.8	0.62	0.62	5.35
2,100.0	0.99	83.72	2,099.9	5.9	8.7	6.4	0.78	0.34	51.65
2,200.0	1.01	130.56	2,199.9	5.4	10.2	6.1	0.80	0.02	46.84
2,300.0	0.96	178.87	2,299.8	4.0	10.9	4.7	0.81	-0.05	48.31
2,400.0	0.82	203.52	2,399.8	2.5	10.7	3.2	0.40	-0.14	24.65
2,500.0	0.38	278.63	2,499.8	1.9	10.0	2.6	0.81	-0.44	75.11
2,600.0	0.48	122.86	2,599.8	1.7	10.1	2.4	0.84	0.10	-155.77
2,700.0	0.78	132.27	2,699.8	1.0	10.9	1.7	0.32	0.30	9.41
2,800.0	0.38	59.22	2,799.8	0.7	11.7	1.5	0.76	-0.40	-73.05
2,900.0	0.70	71.88	2,899.8	1.1	12.6	1.9	0.34	0.32	12.66
3,000.0	0.14	33.90	2,999.8	1.4	13.2	2.3	0.60	-0.56	-37.98
3,100.0	0.58	38.21	3,099.8	1.9	13.6	2.8	0.44	0.44	4.31
3,200.0	0.35	105.60	3,199.8	2.2	14.2	3.1	0.55	-0.23	67.39
3,300.0	0.17	44.01	3,299.8	2.2	14.6	3.2	0.31	-0.18	-61.59
3,400.0	0.40	40.63	3,399.8	2.6	14.9	3.6	0.23	0.23	-3.38
3,500.0	0.24	139.97	3,499.8	2.7	15.3	3.7	0.50	-0.16	99.34
3,600.0	0.22	321.06	3,599.8	2.7	15.3	3.7	0.46	-0.02	-178.91
3,700.0	0.15	178.15	3,699.8	2.7	15.2	3.7	0.35	-0.07	-142.91
3,800.0	0.16	40.22	3,799.8	2.7	15.3	3.7	0.29	0.01	-137.93
3,900.0	0.14	278.95	3,899.8	2.8	15.3	3.8	0.26	-0.02	-121.27
4,000.0	0.09	264.71	3,999.8	2.8	15.1	3.8	0.06	-0.05	-14.24
4,100.0	0.14	235.15	4,099.8	2.7	14.9	3.7	0.08	0.05	-29.56
4,200.0	0.20	144.57	4,199.8	2.5	14.9	3.5	0.25	0.06	-90.58
4,300.0	0.81	157.72	4,299.8	1.7	15.3	2.8	0.62	0.61	13.15
4,400.0	0.74	128.84	4,399.8	0.7	16.0	1.8	0.39	-0.07	-28.88
4,500.0	0.83	154.19	4,499.8	-0.4	16.9	0.8	0.36	0.09	25.35
4,600.0	1.16	136.79	4,599.8	-1.8	17.9	-0.6	0.44	0.33	-17.40
4,700.0	1.48	156.92	4,699.7	-3.7	19.1	-2.4	0.56	0.32	20.13
4,800.0	1.43	167.74	4,799.7	-6.1	19.8	-4.8	0.28	-0.05	10.82
4,900.0	1.35	167.95	4,899.7	-8.5	20.3	-7.1	0.08	-0.08	0.21
5,000.0	1.19	162.74	4,999.6	-10.6	20.9	-9.2	0.20	-0.16	-5.21
5,100.0	1.24	168.20	5,099.6	-12.7	21.4	-11.2	0.13	0.05	5.46
5,200.0	0.81	193.60	5,199.6	-14.4	21.5	-12.9	0.62	-0.43	25.40



Stryker Directional Survey Report



Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well SRO State #58H
Project:	Eddy County, N.M.	TVD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Site:	Section 2-26S-28E SRO State #58H	MD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Well:	SRO State #58H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)
5,300.0	0.77	189.37	5,299.6	-15.8	21.2	-14.3	0.07	-0.04	-4.23
5,400.0	1.03	185.13	5,399.6	-17.3	21.0	-15.9	0.27	0.26	-4.24
5,500.0	0.70	181.84	5,499.6	-18.8	20.9	-17.4	0.33	-0.33	-3.29
5,600.0	0.74	194.29	5,599.6	-20.1	20.7	-18.6	0.16	0.04	12.45
5,700.0	0.72	184.07	5,699.6	-21.3	20.5	-19.9	0.13	-0.02	-10.22
5,800.0	0.66	178.10	5,799.6	-22.5	20.5	-21.1	0.09	-0.06	-5.97
5,900.0	0.82	162.97	5,899.5	-23.8	20.7	-22.3	0.25	0.16	-15.13
6,000.0	0.72	161.18	5,999.5	-25.1	21.1	-23.6	0.10	-0.10	-1.79
6,100.0	0.66	164.36	6,099.5	-26.2	21.5	-24.7	0.07	-0.06	3.18
6,200.0	0.45	189.50	6,199.5	-27.2	21.6	-25.6	0.32	-0.21	25.14
6,300.0	0.22	255.20	6,299.5	-27.6	21.3	-26.1	0.41	-0.23	65.70
6,400.0	0.67	284.64	6,399.5	-27.5	20.6	-26.0	0.49	0.45	29.44
6,500.0	0.90	307.33	6,499.5	-26.9	19.4	-25.5	0.38	0.23	22.69
6,600.0	0.96	292.52	6,599.5	-26.1	18.0	-24.8	0.25	0.06	-14.81
6,700.0	0.93	258.55	6,699.5	-25.9	16.4	-24.7	0.55	-0.03	-33.97
6,800.0	0.92	237.18	6,799.5	-26.5	15.0	-25.4	0.34	-0.01	-21.37
6,900.0	1.10	212.16	6,899.5	-27.8	13.8	-26.8	0.47	0.18	-25.02
7,000.0	1.45	217.21	6,999.4	-29.6	12.5	-28.7	0.37	0.35	5.05
7,100.0	1.78	203.59	7,099.4	-32.0	11.1	-31.2	0.50	0.33	-13.62
7,200.0	2.57	216.21	7,199.3	-35.2	9.2	-34.5	0.92	0.79	12.62
7,300.0	2.71	236.86	7,299.2	-38.3	5.9	-37.9	0.96	0.14	20.65
7,400.0	2.01	245.21	7,399.1	-40.4	2.3	-40.1	0.78	-0.70	8.35
7,500.0	1.99	270.78	7,499.1	-41.1	-1.0	-41.1	0.89	-0.02	25.57
7,600.0	2.36	292.63	7,599.0	-40.3	-4.7	-40.5	0.90	0.37	21.85
7,611.0	2.36	293.13	7,610.0	-40.1	-5.1	-40.4	0.19	0.00	4.55
7611' MD VES Gyro Survey									
7,705.0	3.20	281.20	7,703.9	-38.8	-9.4	-39.4	1.08	0.89	-12.69
7,736.0	3.40	281.90	7,734.8	-38.5	-11.2	-39.1	0.66	0.65	2.26
7,768.0	3.10	314.00	7,766.8	-37.7	-12.7	-38.5	5.68	-0.94	100.31
7,799.0	4.60	344.20	7,797.7	-35.9	-13.7	-36.7	7.98	4.84	97.42
7,830.0	7.20	358.20	7,828.5	-32.8	-14.1	-33.6	9.53	8.39	45.16
7,862.0	9.60	4.50	7,860.2	-28.1	-13.9	-29.0	8.02	7.50	19.69
7,894.0	12.30	5.80	7,891.6	-22.0	-13.4	-22.9	8.47	8.44	4.06
7,925.0	15.30	5.80	7,921.7	-14.7	-12.6	-15.5	9.68	9.68	0.00
7,957.0	19.10	5.20	7,952.3	-5.3	-11.7	-6.1	11.89	11.88	-1.88
7,988.0	22.30	4.60	7,981.3	5.7	-10.8	4.9	10.35	10.32	-1.94
8,019.0	25.50	5.50	8,009.6	18.2	-9.7	17.5	10.39	10.32	2.90
8,051.0	28.30	6.10	8,038.1	32.6	-8.2	31.9	8.79	8.75	1.88
8,082.0	31.00	5.50	8,065.1	47.8	-6.7	47.3	8.76	8.71	-1.94
8,113.0	33.90	3.50	8,091.2	64.4	-5.4	63.9	9.97	9.35	-6.45
8,145.0	38.50	2.40	8,117.1	83.3	-4.4	82.8	14.52	14.38	-3.44
8,176.0	43.50	2.10	8,140.4	103.6	-3.6	103.1	16.14	16.13	-0.97
8,208.0	47.60	2.00	8,162.9	126.4	-2.8	125.9	12.81	12.81	-0.31



Stryker Directional Survey Report



Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well SRO State #58H
Project:	Eddy County, N.M.	TVD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Site:	Section 2-26S-28E SRO State #58H	MD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Well:	SRO State #58H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)	
8,239.0	52.30	2.80	8,182.8	150.1	-1.8	149.6	15.29	15.16	2.58	
8,270.0	57.40	4.70	8,200.6	175.4	-0.1	175.0	17.20	16.45	6.13	
8,302.0	63.20	5.40	8,216.5	203.1	2.3	202.8	18.22	18.13	2.19	
8,333.0	68.70	4.70	8,229.1	231.3	4.8	231.0	17.86	17.74	-2.26	
8,364.0	73.10	4.50	8,239.3	260.4	7.1	260.3	14.21	14.19	-0.65	
8,395.0	77.10	4.40	8,247.2	290.3	9.5	290.3	12.91	12.90	-0.32	
8,493.0	88.10	2.80	8,259.8	387.1	15.5	387.3	11.34	11.22	-1.63	
8,587.0	89.60	3.30	8,261.7	481.0	20.5	481.3	1.68	1.60	0.53	
8,682.0	90.90	3.20	8,261.3	575.8	25.9	576.3	1.37	1.37	-0.11	
8,776.0	87.70	3.00	8,262.4	669.7	31.0	670.2	3.41	-3.40	-0.21	
8,871.0	89.90	3.20	8,264.4	764.5	36.1	765.2	2.33	2.32	0.21	
8,965.0	91.10	3.10	8,263.6	858.4	41.3	859.2	1.28	1.28	-0.11	
9,060.0	90.40	3.60	8,262.4	953.2	46.9	954.2	0.91	-0.74	0.53	
9,155.0	88.70	4.40	8,263.1	1,048.0	53.5	1,049.2	1.98	-1.79	0.84	
9,249.0	89.10	4.00	8,264.9	1,141.7	60.4	1,143.1	0.60	0.43	-0.43	
9,343.0	90.30	4.30	8,265.4	1,235.4	67.2	1,237.1	1.32	1.28	0.32	
9,438.0	89.00	4.70	8,266.0	1,330.1	74.6	1,332.1	1.43	-1.37	0.42	
9,532.0	89.60	5.10	8,267.1	1,423.8	82.7	1,426.1	0.77	0.64	0.43	
9,627.0	90.60	5.50	8,267.0	1,518.4	91.4	1,521.1	1.13	1.05	0.42	
9,723.0	91.40	5.50	8,265.3	1,613.9	100.6	1,617.0	0.83	0.83	0.00	
9,816.0	90.00	6.20	8,264.2	1,706.4	110.1	1,710.0	1.68	-1.51	0.75	
9,911.0	88.70	5.30	8,265.2	1,800.9	119.6	1,804.9	1.66	-1.37	-0.95	
10,006.0	88.10	4.80	8,267.9	1,895.5	128.0	1,899.9	0.82	-0.63	-0.53	
10,101.0	88.00	3.90	8,271.1	1,990.2	135.2	1,994.8	0.95	-0.11	-0.95	
10,196.0	89.00	2.40	8,273.6	2,085.0	140.4	2,089.7	1.90	1.05	-1.58	
10,290.0	88.40	2.40	8,275.8	2,178.9	144.3	2,183.7	0.64	-0.64	0.00	
10,385.0	89.30	2.90	8,277.7	2,273.8	148.7	2,278.6	1.08	0.95	0.53	
10,479.0	89.50	2.30	8,278.6	2,367.7	153.0	2,372.6	0.67	0.21	-0.64	
10,574.0	91.10	2.50	8,278.1	2,462.6	157.0	2,467.6	1.70	1.68	0.21	
10,668.0	90.40	3.70	8,276.9	2,556.5	162.1	2,561.6	1.48	-0.74	1.28	
10,763.0	88.30	4.80	8,278.0	2,651.2	169.1	2,656.5	2.50	-2.21	1.16	
10,857.0	89.10	4.80	8,280.1	2,744.8	177.0	2,750.5	0.85	0.85	0.00	
10,952.0	89.40	4.80	8,281.4	2,839.5	184.9	2,845.5	0.32	0.32	0.00	
11,046.0	90.70	4.80	8,281.3	2,933.2	192.8	2,939.5	1.38	1.38	0.00	
11,140.0	90.40	4.70	8,280.4	3,026.8	200.6	3,033.5	0.34	-0.32	-0.11	
11,235.0	88.70	3.70	8,281.1	3,121.6	207.5	3,128.5	2.08	-1.79	-1.05	
11,330.0	88.70	3.10	8,283.3	3,216.4	213.1	3,223.4	0.63	0.00	-0.63	
11,425.0	88.30	2.80	8,285.8	3,311.2	218.0	3,318.4	0.53	-0.42	-0.32	
11,520.0	88.70	3.10	8,288.3	3,406.1	222.9	3,413.3	0.53	0.42	0.32	
11,614.0	90.00	4.20	8,289.3	3,499.9	228.9	3,507.3	1.81	1.38	1.17	
11,709.0	91.20	4.10	8,288.3	3,594.6	235.8	3,602.3	1.27	1.26	-0.11	
11,804.0	90.30	5.40	8,287.1	3,689.3	243.6	3,697.3	1.66	-0.95	1.37	
11,898.0	88.90	5.00	8,287.7	3,782.9	252.2	3,791.3	1.55	-1.49	-0.43	
11,993.0	89.70	5.30	8,288.9	3,877.5	260.7	3,886.2	0.90	0.84	0.32	



Stryker Directional Survey Report



Company:	COG Operating, LLC.	Local Co-ordinate Reference:	Well SRO State #58H
Project:	Eddy County, N.M.	TVD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Site:	Section 2-26S-28E SRO State #58H	MD Reference:	GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)
Well:	SRO State #58H	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Stryker_EDM

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)	
12,088.0	90.30	5.10	8,288.9	3,972.1	269.3	3,981.2	0.67	0.63	-0.21	
12,183.0	88.60	4.00	8,289.8	4,066.8	276.8	4,076.2	2.13	-1.79	-1.16	
12,277.0	89.10	3.80	8,291.7	4,160.5	283.2	4,170.2	0.57	0.53	-0.21	
12,371.0	90.10	3.90	8,292.4	4,254.3	289.5	4,264.2	1.07	1.06	0.11	
12,466.0	89.20	3.80	8,292.9	4,349.1	295.9	4,359.2	0.95	-0.95	-0.11	
12,561.0	89.50	4.30	8,294.0	4,443.9	302.6	4,454.2	0.61	0.32	0.53	
12,654.0	91.20	4.60	8,293.4	4,536.6	309.8	4,547.2	1.86	1.83	0.32	
12,749.0	91.90	5.50	8,290.9	4,631.2	318.2	4,642.1	1.20	0.74	0.95	
12,802.0	91.90	5.50	8,289.1	4,683.9	323.3	4,695.0	0.00	0.00	0.00	

12802' MD Projected to Bit - PBHL SRO State #58H

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,611.0	7,610.0	-40.1	-5.1	7611'MD VES Gyro Survey
12,802.0	8,289.1	4,683.9	323.3	12802' MD Projected to Bit



COMPANY: COG Operating, LLC.
WELL: SRO State #58H
COUNTY: Eddy County, N.M.
DATUM: NAD 1927 (NADCON CONUS)
RIG: Silver Oak #7



OFFICE: 936.582.7296

GRID CORRECTION: To convert a Magnetic Direction to a Grid Direction, Add 7.30°

GEODETIC ZONE: New Mexico East 3001							Slot
GL 2964.4 + 18 @ 2982.4usft (Silver Oak #7)							
GROUND ELEVATION: 2964.4							
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
0.0	0.0	387468.70	584744.40	32° 3' 53.898 N	104° 3' 35.161 W		

PLAN SECTIONS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	7611.0	2.36	293.13	7610.0	-40.1	5.1	0.00	0.00	-40.4	
2	7790.4	2.36	293.13	7789.2	-37.2	11.9	0.00	0.00	-37.9	
3	8530.0	89.52	4.24	8260.0	436.3	4.9	12.00	71.14	435.6	
4	12821.7	89.52	4.24	8296.0	4716.1	321.9	0.00	0.00	4727.1	PBHL SRO State #58H

