



June 26, 2014

15-42384

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

NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 12 2014

Attn: Kanicia Castillo

RECEIVED

RE: **Noose Federal Com No. 009H**

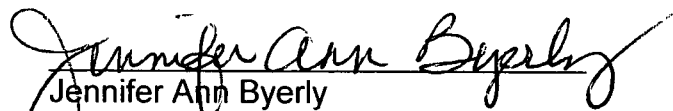
Please find enclosed a copy of the survey from 0.00' to 2,230.00' ran on the above referenced well.

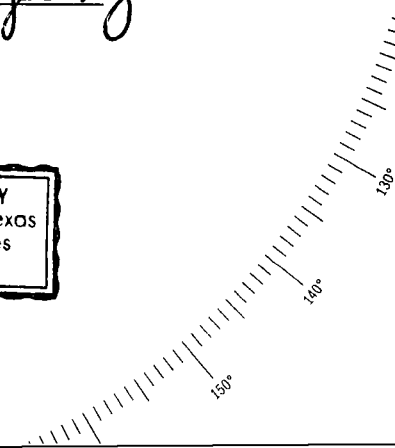
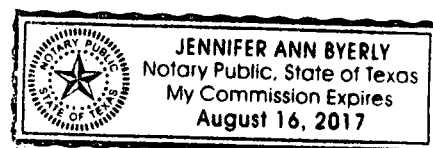
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 26 day of June,
A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas



Company: COG Operating, LLC (Concho)

Lease/Well: Moose Federal Com/No. 009H



Rig Name: Silver Oak #3

State/County: New Mexico/Eddy

Latitude: 32.61, Longitude: -104.46

GRID North is 0.07 Degrees West of True North

VS-Azi: 0.00 Degrees



Depth Reference : RKB=17 Feet

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: gyro survey.ut

Minimum Curvature Method

Report Date/Time: 6/24/2014 / 15:24

VES Survey International

West, Texas

(432) 563-5444

Surveyor: Adam Gathright

Noose Federal Com No. 009H / API 30-015-42384

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	0.67	197.66	100.00	-0.56	-0.18	-0.56	0.58	197.66	0.67
200.00	0.35	213.90	199.99	-1.37	-0.52	-1.37	1.46	200.98	0.35
300.00	0.50	236.77	299.99	-1.85	-1.06	-1.85	2.13	209.64	0.22
400.00	0.37	166.72	399.99	-2.41	-1.34	-2.41	2.76	209.19	0.51
500.00	0.07	86.45	499.99	-2.72	-1.20	-2.72	2.97	203.92	0.36
600.00	0.31	41.32	599.99	-2.51	-0.96	-2.51	2.68	200.94	0.27
700.00	0.12	17.98	699.99	-2.20	-0.74	-2.20	2.32	198.72	0.21
800.00	0.36	345.49	799.99	-1.79	-0.79	-1.79	1.96	203.79	0.26
900.00	0.35	324.25	899.98	-1.24	-1.05	-1.24	1.62	220.22	0.13
1000.00	0.35	324.61	999.98	-0.74	-1.41	-0.74	1.59	242.28	0.00
1100.00	0.32	286.50	1099.98	-0.41	-1.85	-0.41	1.90	257.59	0.22
1200.00	0.17	289.64	1199.98	-0.28	-2.26	-0.28	2.28	262.96	0.16
1300.00	0.29	294.26	1299.98	-0.13	-2.63	-0.13	2.63	267.26	0.13
1400.00	0.28	260.64	1399.98	-0.06	-3.10	-0.06	3.10	268.88	0.17
1500.00	0.50	308.52	1499.98	0.17	-3.69	0.17	3.69	272.69	0.38
1600.00	0.76	307.51	1599.97	0.85	-4.56	0.85	4.64	280.56	0.25
1700.00	0.80	319.24	1699.96	1.78	-5.54	1.78	5.82	287.84	0.17
1800.00	0.98	322.76	1799.95	3.00	-6.52	3.00	7.17	294.70	0.19

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	1.40	321.32	1899.93	4.64	-7.80	4.64	9.08	300.72	0.42
2000.00	1.79	325.12	1999.89	6.87	-9.46	6.87	11.69	306.00	0.40
2100.00	2.56	322.18	2099.81	9.92	-11.72	9.92	15.35	310.24	0.78
2230.00	2.87	323.01	2229.67	14.81	-15.46	14.81	21.41	313.77	0.24



COG Operating LLC

Eddy County, NM (NAD27 NME)

Noose Federal Com

#9H

WB1/1410962

Survey: Phoenix MWD Survey

Standard Survey Report

22 June, 2014

NM OIL CONSERVATION

ARTESIA DISTRICT

SEP 12 2014

RECEIVED



PHOENIX

TECHNOLOGY SERVICES



Phoenix Technology Services
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #9H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3483.00usft (Silver Oak 3)
Site:	Noose Federal Com	MD Reference:	KB @ 3483.00usft (Silver Oak 3)
Well:	#9H	North Reference:	Grid
Wellbore:	WB1/1410962	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000 GCR-DB

Project:	Eddy 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:	Noose Federal Com		
Site Position:		Northing:	585,657.00 usft
From:	Map	Easting:	460,945.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 36' 36.04153 N
		Longitude:	104° 27' 36.59241 W
		Grid Convergence:	-0.07 °

Well	#9H					
Well Position	+N/-S	0.00 usft	Northing:	585,658.70 usft	Latitude:	32° 36' 36.06480 N
	+E/-W	0.00 usft	Easting:	461,495.90 usft	Longitude:	104° 27' 30.15763 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,465.00 usft

Wellbore:	WB1/1410962				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	06/09/14	7.66	60.32	48,452

Design:	Surveys (Silver Oak 3)				
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	0.17	

Survey Program	Date: 06/22/14				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.00	2,230.00	VES Gyro Survey (WB1/1410962)	VES-ISCWSA-GYRO-3	Biaxial Semi-Cont. Gyro	
2,281.00	7,426.00	Phoenix MWD Survey (WB1/1410962)	PHX+MWD+IGRF	PHX+MWD+IGRF v3: standard declination	

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)
	2,230.00	2.87	323.01	2,229.67	14.81	-15.46	14.76	0.00	0.00	0.00
	2,281.00	3.40	324.50	2,280.59	17.06	-17.11	17.01	1.05	1.04	2.92
First Phoenix Survey										
	2,312.00	3.30	322.50	2,311.54	18.52	-18.19	18.46	0.50	-0.32	-6.45
	2,344.00	3.40	321.40	2,343.48	19.99	-19.34	19.93	0.37	0.31	-3.44
	2,375.00	3.80	331.10	2,374.42	21.61	-20.41	21.55	2.35	1.29	31.29
	2,406.00	6.20	343.50	2,405.30	24.11	-21.38	24.05	8.45	7.74	40.00
	2,437.00	8.90	346.70	2,436.03	28.05	-22.41	27.99	8.81	8.71	10.32
	2,468.00	11.90	346.90	2,466.52	33.50	-23.68	33.43	9.68	9.68	0.65
	2,499.00	14.70	346.60	2,496.69	40.44	-25.32	40.36	9.03	9.03	-0.97



Phoenix Technology Services
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #9H
Project:	Eddy County NM (NAD27 NME)	TVD Reference:	KB @ 3483.00usft (Silver Oak 3)
Site:	Noose Federal Com	MD Reference:	KB @ 3483.00usft (Silver Oak 3)
Well:	#9H	North Reference:	Grid
Wellbore:	WB1/1410962	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000 GCR DB

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)
2,531.00	17.40	348.40	2,527.44	49.08	-27.22	49.00	8.58	8.44	5.63
2,562.00	20.00	348.70	2,556.80	58.82	-29.20	58.73	8.39	8.39	0.97
2,593.00	23.20	348.90	2,585.62	70.01	-31.41	69.92	10.33	10.32	0.65
2,625.00	26.40	350.50	2,614.66	83.22	-33.80	83.12	10.22	10.00	5.00
2,656.00	29.50	351.90	2,642.04	97.57	-36.01	97.47	10.22	10.00	4.52
2,687.00	33.00	352.60	2,668.54	113.51	-38.18	113.39	11.35	11.29	2.26
2,718.00	36.60	353.00	2,693.99	131.06	-40.39	130.94	11.64	11.61	1.29
2,750.00	39.90	353.50	2,719.12	150.73	-42.71	150.60	10.36	10.31	1.56
2,781.00	42.50	354.40	2,742.44	171.03	-44.86	170.90	8.60	8.39	2.90
2,812.00	44.70	356.00	2,764.89	192.33	-46.64	192.19	7.94	7.10	5.16
2,843.00	46.10	358.80	2,786.66	214.38	-47.64	214.24	7.86	4.52	9.03
2,874.00	48.60	1.20	2,807.66	237.18	-47.63	237.03	9.87	8.06	7.74
2,905.00	51.00	2.50	2,827.67	260.84	-46.86	260.70	8.38	7.74	4.19
2,936.00	53.60	3.20	2,846.63	285.33	-45.64	285.20	8.58	8.39	2.26
2,968.00	56.50	3.50	2,864.96	311.51	-44.11	311.38	9.10	9.06	0.94
2,999.00	59.00	3.80	2,881.50	337.68	-42.44	337.55	8.11	8.06	0.97
3,029.00	62.20	3.90	2,896.22	363.75	-40.68	363.63	10.67	10.67	0.33
3,060.00	65.40	3.50	2,909.91	391.50	-38.89	391.39	10.39	10.32	-1.29
3,092.00	68.30	2.20	2,922.49	420.89	-37.43	420.77	9.80	9.06	-4.06
3,123.00	71.40	1.40	2,933.16	449.97	-36.52	449.86	10.29	10.00	-2.58
3,154.00	74.80	0.50	2,942.17	479.62	-36.03	479.51	11.31	10.97	-2.90
3,185.00	78.50	1.00	2,949.33	509.78	-35.63	509.67	12.04	11.94	1.61
3,216.00	82.50	1.80	2,954.45	540.34	-34.88	540.23	13.15	12.90	2.58
3,247.00	86.70	1.90	2,957.36	571.18	-33.89	571.07	13.55	13.55	0.32
3,297.00	90.40	1.50	2,958.63	621.13	-32.40	621.03	7.44	7.40	-0.80
3,328.00	90.90	1.60	2,958.28	652.12	-31.57	652.02	1.64	1.61	0.32
3,423.00	92.00	1.60	2,955.87	747.05	-28.91	746.96	1.16	1.16	0.00
3,516.00	92.90	1.60	2,951.90	839.93	-26.32	839.84	0.97	0.97	0.00
3,610.00	92.30	1.00	2,947.63	933.80	-24.19	933.73	0.90	-0.64	-0.64
3,703.00	90.60	359.60	2,945.28	1,026.77	-23.70	1,026.69	2.37	-1.83	-1.51
3,797.00	90.60	359.20	2,944.30	1,120.76	-24.69	1,120.68	0.43	0.00	-0.43
3,891.00	91.00	358.90	2,942.98	1,214.73	-26.25	1,214.65	0.53	0.43	-0.32
3,984.00	91.30	359.10	2,941.12	1,307.70	-27.87	1,307.61	0.39	0.32	0.22
4,077.00	91.20	0.40	2,939.09	1,400.68	-28.27	1,400.59	1.40	-0.11	1.40
4,170.00	90.10	1.50	2,938.03	1,493.65	-26.73	1,493.57	1.67	-1.18	1.18
4,263.00	89.40	2.60	2,938.44	1,586.59	-23.40	1,586.52	1.40	-0.75	1.18
4,357.00	90.20	2.50	2,938.77	1,680.50	-19.22	1,680.43	0.86	0.85	-0.11
4,451.00	89.50	1.40	2,939.01	1,774.44	-16.02	1,774.39	1.39	-0.74	-1.17
4,544.00	90.20	0.80	2,939.26	1,867.42	-14.24	1,867.37	0.99	0.75	-0.65
4,637.00	91.00	0.60	2,938.28	1,960.41	-13.10	1,960.36	0.89	0.86	-0.22
4,731.00	90.20	0.40	2,937.30	2,054.40	-12.28	2,054.35	0.88	-0.85	-0.21
4,824.00	90.90	0.20	2,936.40	2,147.39	-11.80	2,147.35	0.78	0.75	-0.22
4,918.00	91.30	359.50	2,934.60	2,241.38	-12.04	2,241.33	0.86	0.43	-0.74



Phoenix Technology Services
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #9H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3483.00usft (Silver Oak 3)
Site:	Noose Federal Com	MD Reference:	KB @ 3483.00usft (Silver Oak 3)
Well:	#9H	North Reference:	Grid
Wellbore:	WB1/1410962	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000 GCR DB

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)
5,012.00	91.20	359.00	2,932.55	2,335.34	-13.27	2,335.29	0.54	-0.11	-0.53
5,106.00	90.80	359.80	2,930.91	2,429.32	-14.26	2,429.27	0.95	-0.43	0.85
5,199.00	90.10	1.00	2,930.18	2,522.32	-13.61	2,522.27	1.49	-0.75	1.29
5,293.00	90.90	1.10	2,929.36	2,616.30	-11.88	2,616.25	0.86	0.85	0.11
5,387.00	90.40	1.00	2,928.29	2,710.27	-10.16	2,710.23	0.54	-0.53	-0.11
5,481.00	90.90	1.30	2,927.23	2,804.25	-8.28	2,804.21	0.62	0.53	0.32
5,574.00	89.90	1.30	2,926.58	2,897.22	-6.17	2,897.19	1.08	-1.08	0.00
5,668.00	90.60	1.40	2,926.17	2,991.19	-3.95	2,991.17	0.75	0.74	0.11
5,762.00	89.80	0.20	2,925.84	3,085.18	-2.64	3,085.16	1.53	-0.85	-1.28
5,856.00	90.80	359.90	2,925.35	3,179.18	-2.56	3,179.16	1.11	1.06	-0.32
5,949.00	90.10	0.00	2,924.62	3,272.18	-2.64	3,272.15	0.76	-0.75	0.11
6,042.00	90.90	359.90	2,923.80	3,365.17	-2.72	3,365.15	0.87	0.86	-0.11
6,136.00	91.30	0.50	2,922.00	3,459.15	-2.39	3,459.13	0.77	0.43	0.64
6,230.00	90.60	1.90	2,920.44	3,553.12	-0.42	3,553.10	1.66	-0.74	1.49
6,323.00	90.70	2.30	2,919.39	3,646.05	2.99	3,646.04	0.44	0.11	0.43
6,417.00	89.50	1.80	2,919.22	3,739.99	6.35	3,739.99	1.38	-1.28	-0.53
6,510.00	89.50	0.90	2,920.03	3,832.96	8.54	3,832.96	0.97	0.00	-0.97
6,604.00	89.80	0.20	2,920.61	3,926.95	9.44	3,926.96	0.81	0.32	-0.74
6,697.00	90.60	359.90	2,920.28	4,019.95	9.52	4,019.96	0.92	0.86	-0.32
6,791.00	90.80	359.70	2,919.13	4,113.94	9.19	4,113.95	0.30	0.21	-0.21
6,885.00	89.80	0.00	2,918.64	4,207.94	8.95	4,207.94	1.11	-1.06	0.32
6,979.00	90.00	359.90	2,918.81	4,301.94	8.87	4,301.94	0.24	0.21	-0.11
7,072.00	89.80	358.90	2,918.97	4,394.93	7.89	4,394.93	1.10	-0.22	-1.08
7,166.00	90.80	359.50	2,918.48	4,488.92	6.58	4,488.92	1.24	1.06	0.64
7,260.00	91.30	359.90	2,916.75	4,582.90	6.09	4,582.90	0.68	0.53	0.43
7,353.00	91.30	1.10	2,914.64	4,675.87	6.90	4,675.87	1.29	0.00	1.29
7,364.00	91.30	1.30	2,914.39	4,686.87	7.13	4,686.87	1.82	0.00	1.82
Final Phoenix Survey									
7,426.00	91.30	1.30	2,912.99	4,748.83	8.54	4,748.84	0.00	0.00	0.00
Projection to TD									

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
2,281.00	2,280.59	17.06	-17.11	First Phoenix Survey
7,364.00	2,916.52	4,686.91	7.48	Final Phoenix Survey
7,426.00	2,915.12	4,748.87	8.89	Projection to TD

Checked By: _____ Approved By: _____ Date: _____