



July 8, 2014

15-41958

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

Attn: Kanicia Castillo

RE: **Hearse 36 State Com 6H**

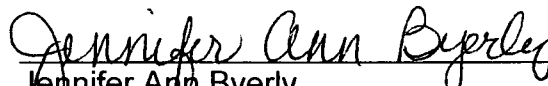
Please find enclosed a copy of the survey from 0.00' to 2540.00' ran on the above referenced well.

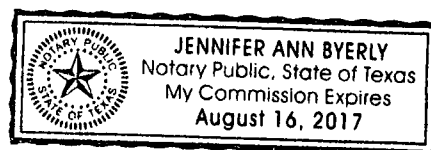
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 8 day of July, A.D., 2014, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: Concho
Lease/Well: Hearse 36 State Com /6H

Rig Name: Silver Oak 3
State/County: New Mexico/Eddy
Latitude: 32.61, Longitude: -104.44
GRID North is 0.06 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: 7/8/2014 / 14:50

VES Survey International
West Texas
(432) 563-5444
Surveyor: Adam Gathright
Hearse 36 State Com 6H / API 30-015-41958

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	0.57	211.56	100.00	-0.42	-0.26	-0.42	0.50	211.56	0.57
200.00	0.37	217.91	199.99	-1.10	-0.72	-1.10	1.31	213.11	0.21
300.00	0.50	214.63	299.99	-1.71	-1.16	-1.71	2.07	214.18	0.14
400.00	0.67	216.81	399.99	-2.55	-1.77	-2.55	3.10	214.74	0.17
500.00	0.92	218.52	499.98	-3.65	-2.62	-3.65	4.49	215.69	0.25
600.00	0.69	216.00	599.97	-4.77	-3.48	-4.77	5.90	216.11	0.23
700.00	0.69	226.97	699.96	-5.67	-4.28	-5.67	7.10	217.02	0.13
800.00	0.49	221.20	799.95	-6.41	-5.00	-6.41	8.13	217.98	0.21
900.00	0.63	219.99	899.95	-7.15	-5.64	-7.15	9.11	218.25	0.14
1000.00	0.73	222.29	999.94	-8.04	-6.42	-8.04	10.29	218.59	0.10
1100.00	0.74	231.62	1099.93	-8.91	-7.35	-8.91	11.56	219.52	0.12
1200.00	0.77	265.32	1199.93	-9.37	-8.53	-9.37	12.67	222.31	0.44
1300.00	0.82	262.25	1299.92	-9.52	-9.91	-9.52	13.74	226.14	0.06
1400.00	0.87	266.06	1399.91	-9.67	-11.37	-9.67	14.93	229.62	0.07
1500.00	0.77	258.47	1499.90	-9.86	-12.78	-9.86	16.14	232.36	0.15
1600.00	0.54	264.05	1599.89	-10.04	-13.91	-10.04	17.15	234.17	0.23
1700.00	0.51	273.17	1699.88	-10.06	-14.82	-10.06	17.91	235.81	0.09
1800.00	0.44	280.89	1799.88	-9.97	-15.63	-9.97	18.54	237.47	0.09

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	0.39	275.79	1899.88	-9.86	-16.34	-9.86	19.08	238.88	0.06
2000.00	0.52	292.98	1999.88	-9.65	-17.09	-9.65	19.63	240.54	0.19
2100.00	0.81	307.29	2099.87	-9.05	-18.07	-9.05	20.21	243.40	0.33
2200.00	0.84	300.10	2199.86	-8.25	-19.27	-8.25	20.96	246.82	0.11
2300.00	0.72	303.32	2299.85	-7.54	-20.43	-7.54	21.77	249.75	0.13
2400.00	0.75	310.68	2399.84	-6.77	-21.45	-6.77	22.49	252.49	0.10
2540.00	0.95	308.47	2539.83	-5.45	-23.05	-5.45	23.68	256.70	0.15



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

July 8, 2014

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

RE: Hearse 36 State Com #6H
150' FSL & 2310' FEL
Sec. 36, T19S, R25E
Eddy County, New Mexico

Dear Sir,

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

Very truly yours,

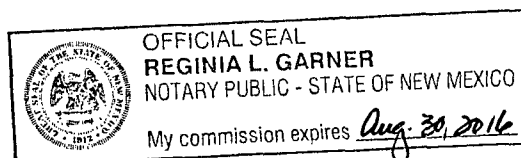
A handwritten signature in cursive script, appearing to read "Chris Graham".

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 8th day of July, 2014.

A handwritten signature in cursive script, appearing to read "Regina L. Garner".

Notary Public

HEARSE 36 STATE COM # 6H

Date	Depth	Deviation	Direction
6/25/2014	107	0.60	0.00
6/25/2014	233	0.50	0.00
6/25/2014	472	0.40	0.00
6/26/2014	964	0.80	0.00
6/26/2014	1065	0.60	0.00
6/27/2014	1363	0.80	0.00
6/27/2014	1862	0.30	0.00
6/28/2014	2362	0.80	0.00
6/29/2014	2616	0.80	317.10
6/29/2014	2647	2.10	351.90
6/29/2014	2678	7.50	3.00
6/29/2014	2709	13.70	2.30
6/29/2014	2740	18.70	2.20
6/29/2014	2771	22.30	3.10
6/29/2014	2802	4.90	0.00
6/29/2014	2833	28.20	8.10
6/29/2014	2864	30.50	9.40
6/29/2014	2895	33.10	8.50
6/29/2014	2958	38.90	5.70
6/29/2014	2989	40.90	4.60
6/29/2014	3020	42.90	4.70
6/29/2014	3052	44.30	4.70
6/29/2014	3083	45.90	5.30
6/29/2014	3114	47.40	4.60
6/29/2014	3145	50.30	4.20
6/29/2014	3177	52.80	5.80
6/30/2014	3208	53.00	5.80
6/30/2014	3239	55.00	4.60
6/30/2014	3270	58.20	4.00
6/30/2014	3301	61.50	3.00
6/30/2014	3332	63.80	3.00
6/30/2014	3363	65.80	1.80
6/30/2014	3395	67.00	2.30
6/30/2014	3426	70.20	2.50
6/30/2014	3458	73.60	3.10
6/30/2014	3489	78.30	3.50
6/30/2014	3520	83.40	4.40
6/30/2014	3551	86.70	5.00
7/1/2014	3582	87.80	5.40
7/1/2014	3614	89.20	4.80
7/1/2014	3633	89.30	4.20
7/1/2014	3664	91.50	3.10
7/1/2014	3695	92.30	2.80

Date	Depth	Deviation	Direction
7/1/2014	3789	92.30	1.60
7/1/2014	3884	92.00	0.40
7/1/2014	3977	90.90	359.50
7/1/2014	4070	89.90	358.30
7/1/2014	4164	89.80	358.00
7/2/2014	4258	90.00	357.90
7/2/2014	4351	90.20	357.60
7/2/2014	4445	90.10	358.30
7/2/2014	4538	89.50	359.00
7/2/2014	4632	89.20	359.80
7/2/2014	4725	89.10	359.80
7/2/2014	4819	89.60	0.50
7/2/2014	4912	90.30	0.80
7/2/2014	5006	90.40	0.50
7/2/2014	5099	90.20	0.30
7/3/2014	5192	90.10	0.10
7/3/2014	5286	90.20	359.60
7/3/2014	5380	90.40	359.40
7/3/2014	5473	90.60	359.00
7/3/2014	5566	90.30	359.50
7/3/2014	5661	90.50	359.20
7/3/2014	5754	90.40	359.20
7/3/2014	5847	89.30	0.30
7/3/2014	5941	89.10	0.70
7/3/2014	6034	89.20	0.70
7/3/2014	6128	89.20	1.60
7/4/2014	6222	89.40	1.10
7/4/2014	6315	91.10	0.20
7/4/2014	6409	91.50	359.60
7/4/2014	6503	90.20	0.80
7/4/2014	6597	90.30	0.20
7/4/2014	6691	90.10	0.30
7/4/2014	6784	90.50	360.00
7/4/2014	6878	90.90	359.98
7/4/2014	6972	90.30	0.70
7/5/2014	7066	89.30	1.60
7/5/2014	7160	89.60	1.40
7/5/2014	7253	90.20	1.20
7/5/2014	7346	89.10	1.20
7/6/2014	7440	89.00	0.20
7/6/2014	7534	89.50	359.60

EOF



COG Operating LLC

Eddy County, NM (NAD27 NME)

Hearse 36 State

#6H

WB1/Job #1410991

Survey: Phoenix MWD Survey

Standard Survey Report

06 July, 2014

NM OIL CONSERVATION
ARTESIA DISTRICT

SEP 12 2014

RECEIVED





Phoenix Technology Services
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #6H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3426.00usft (Silver Oak 3)
Site:	Hearse 36 State	MD Reference:	KB @ 3426.00usft (Silver Oak 3)
Well:	#6H	North Reference:	Grid
Wellbore:	WB1/Job #1410991	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	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:	Hearse 36 State		
Site Position:		Northing:	585,673.60 usft
From:	Map	Easting:	466,182.10 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 36' 36.26340 N
		Longitude:	104° 26' 35.37078 W
		Grid Convergence:	-0.06 °

Well:	#6H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	32° 36' 36.34450 N
		Longitude:	104° 26' 12.18847 W
		Ground Level:	3,408.00 usft

Wellbore:	WB1/Job #1410991		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010_14	06/09/14	7.65
			Dip Angle
			(°)
			Field Strength
			(nT)
			60.32
			48,455

Design:	Surveys (Silver Oak 3)		
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
			(°)
			0.31

Survey Program	Date	07/06/14
From	To	Survey (Wellbore)
(usft)	(usft)	
100.00	2,540.00	VES Gyros (WB1/Job #1410991)
2,616.00	7,674.00	Phoenix MWD Survey (WB1/Job #141099)
		Tool Name
		NS-GYRO-MS
		PHX+MWD+IGRF
		Description
		North sensing gyrocompassing m/s
		PHX+MWD+IGRF v3:standard declination

Survey									
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
2,540.00	0.95	308.47	2,539.83	-5.45	-23.05	-5.57	0.00	0.00	0.00
Tie-on to Gyro Survey									
2,616.00	0.80	317.10	2,615.82	-4.67	-23.90	-4.80	0.26	-0.20	11.36
First Phoenix MWD Survey									
2,647.00	2.10	351.90	2,646.81	-3.95	-24.13	-4.08	4.88	4.19	112.26
2,678.00	7.50	3.00	2,677.69	-1.36	-24.11	-1.49	17.59	17.42	35.81
2,709.00	13.70	2.30	2,708.14	4.33	-23.85	4.20	20.00	20.00	-2.26
2,740.00	18.70	2.20	2,737.90	12.97	-23.51	12.84	16.13	16.13	-0.32
2,771.00	22.30	3.10	2,766.93	23.81	-23.01	23.69	11.66	11.61	2.90



Phoenix Technology Services
Survey Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #6H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3426.00usft (Silver Oak 3)
Site:	Hearse 36 State	MD Reference:	KB @ 3426.00usft (Silver Oak 3)
Well:	#6H	North Reference:	Grid
Wellbore:	WB1/Job #1410991	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	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)
2,802.00	25.10	4.90	2,795.32	36.24	-22.13	36.12	9.33	9.03	5.81
2,833.00	28.20	8.10	2,823.02	50.05	-20.53	49.93	11.02	10.00	10.32
2,864.00	30.50	9.40	2,850.04	65.06	-18.21	64.96	7.70	7.42	4.19
2,895.00	33.10	8.50	2,876.39	81.20	-15.68	81.11	8.53	8.39	-2.90
2,927.00	36.00	6.80	2,902.74	99.18	-13.27	99.11	9.55	9.06	-5.31
2,958.00	38.90	5.70	2,927.35	117.92	-11.23	117.85	9.60	9.35	-3.55
2,989.00	40.90	4.60	2,951.13	137.72	-9.45	137.67	6.84	6.45	-3.55
3,020.00	42.90	4.70	2,974.20	158.35	-7.77	158.31	6.46	6.45	0.32
3,052.00	44.30	4.70	2,997.38	180.35	-5.96	180.31	4.38	4.38	0.00
3,083.00	45.90	5.30	3,019.26	202.22	-4.04	202.20	5.34	5.16	1.94
3,114.00	47.40	4.60	3,040.54	224.68	-2.10	224.66	5.11	4.84	-2.26
3,145.00	50.30	4.20	3,060.93	247.95	-0.31	247.94	9.41	9.35	-1.29
3,177.00	52.80	5.80	3,080.83	272.91	1.88	272.92	8.74	7.81	5.00
3,208.00	53.00	5.80	3,099.53	297.51	4.38	297.53	0.65	0.65	0.00
3,239.00	55.00	4.60	3,117.75	322.48	6.65	322.51	7.17	6.45	-3.87
3,270.00	58.20	4.00	3,134.81	348.29	8.58	348.33	10.45	10.32	-1.94
3,301.00	61.50	3.00	3,150.38	375.04	10.22	375.09	11.00	10.65	-3.23
3,332.00	63.80	3.00	3,164.62	402.54	11.66	402.59	7.42	7.42	0.00
3,363.00	65.80	1.80	3,177.82	430.56	12.83	430.62	7.34	6.45	-3.87
3,395.00	67.00	2.30	3,190.63	459.86	13.88	459.93	4.01	3.75	1.56
3,426.00	70.20	2.50	3,201.94	488.70	15.09	488.77	10.34	10.32	0.65
3,458.00	73.60	3.10	3,211.88	519.07	16.58	519.15	10.77	10.63	1.88
3,489.00	78.30	3.50	3,219.41	549.09	18.31	549.18	15.21	15.16	1.29
3,520.00	83.40	4.40	3,224.34	579.61	20.42	579.71	16.70	16.45	2.90
3,551.00	86.70	5.00	3,227.01	610.38	22.95	610.50	10.82	10.65	1.94
3,583.00	87.80	5.40	3,228.55	642.21	25.84	642.35	3.66	3.44	1.25
3,614.00	89.20	4.80	3,229.36	673.08	28.60	673.23	4.91	4.52	-1.94
3,633.00	89.30	4.20	3,229.61	692.02	30.09	692.17	3.20	0.53	-3.16
3,665.00	91.50	3.10	3,229.38	723.95	32.13	724.12	7.69	6.88	-3.44
3,696.00	92.30	2.80	3,228.35	754.89	33.72	755.07	2.76	2.58	-0.97
3,790.00	92.30	1.60	3,224.58	848.75	37.33	848.94	1.28	0.00	-1.28
3,884.00	92.00	0.40	3,221.06	942.66	38.97	942.86	1.32	-0.32	-1.28
3,977.00	90.90	359.50	3,218.70	1,035.63	38.88	1,035.83	1.53	-1.18	-0.97
4,070.00	89.90	358.30	3,218.05	1,128.61	37.10	1,128.79	1.68	-1.08	-1.29
4,164.00	89.80	358.00	3,218.30	1,222.56	34.06	1,222.73	0.34	-0.11	-0.32
4,258.00	90.00	357.90	3,218.46	1,316.50	30.70	1,316.65	0.24	0.21	-0.11
4,351.00	90.20	357.60	3,218.30	1,409.43	27.05	1,409.55	0.39	0.22	-0.32
4,445.00	90.10	358.30	3,218.05	1,503.37	23.69	1,503.47	0.75	-0.11	0.74
4,538.00	89.50	359.00	3,218.38	1,596.34	21.50	1,596.43	0.99	-0.65	0.75
4,632.00	89.20	359.80	3,219.45	1,690.33	20.51	1,690.41	0.91	-0.32	0.85
4,726.00	89.10	359.80	3,220.84	1,784.32	20.19	1,784.40	0.11	-0.11	0.00
4,819.00	89.60	0.50	3,221.89	1,877.31	20.43	1,877.39	0.92	0.54	0.75
4,912.00	90.30	0.80	3,221.98	1,970.30	21.48	1,970.39	0.82	0.75	0.32



Phoenix Technology Services
Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #6H
Project:	Eddy County NM (NAD27 NME)	TVD Reference:	KB @ 3426.00usft (Silver Oak 3)
Site:	Hearse 36 State	MD Reference:	KB @ 3426.00usft (Silver Oak 3)
Well:	#6H	North Reference:	Grid
Wellbore:	WB1/Job #1410991	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	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)
5,006.00	90.40	0.50	3,221.40	2,064.30	22.55	2,064.39	0.34	0.11	-0.32
5,099.00	90.20	0.30	3,220.91	2,157.29	23.20	2,157.39	0.30	-0.22	-0.22
5,192.00	90.10	0.10	3,220.67	2,250.29	23.52	2,250.39	0.24	-0.11	-0.22
5,286.00	90.20	359.60	3,220.43	2,344.29	23.28	2,344.38	0.54	0.11	-0.53
5,380.00	90.40	359.40	3,219.93	2,438.28	22.46	2,438.37	0.30	0.21	-0.21
5,473.00	90.60	359.00	3,219.12	2,531.27	21.16	2,531.35	0.48	0.22	-0.43
5,567.00	90.30	359.50	3,218.38	2,625.26	19.93	2,625.33	0.62	-0.32	0.53
5,660.00	90.50	359.20	3,217.73	2,718.25	18.87	2,718.31	0.39	0.22	-0.32
5,753.00	90.40	359.20	3,217.00	2,811.24	17.58	2,811.29	0.11	-0.11	0.00
5,847.00	89.30	0.30	3,217.25	2,905.24	17.17	2,905.29	1.65	-1.17	1.17
5,941.00	89.10	0.70	3,218.56	2,999.22	17.99	2,999.28	0.48	-0.21	0.43
6,034.00	89.20	0.70	3,219.94	3,092.21	19.12	3,092.26	0.11	0.11	0.00
6,128.00	89.20	1.60	3,221.25	3,186.18	21.01	3,186.24	0.96	0.00	0.96
6,222.00	89.40	1.10	3,222.40	3,280.14	23.22	3,280.22	0.57	0.21	-0.53
6,315.00	91.10	0.20	3,222.00	3,373.13	24.28	3,373.21	2.07	1.83	-0.97
6,409.00	91.50	359.60	3,219.86	3,467.11	24.11	3,467.19	0.77	0.43	-0.64
6,502.00	90.20	0.80	3,218.48	3,560.09	24.44	3,560.17	1.90	-1.40	1.29
6,596.00	90.30	0.20	3,218.07	3,654.09	25.26	3,654.17	0.65	0.11	-0.64
6,690.00	90.10	0.30	3,217.75	3,748.09	25.67	3,748.17	0.24	-0.21	0.11
6,784.00	90.50	0.00	3,217.25	3,842.08	25.91	3,842.17	0.53	0.43	-0.32
6,878.00	90.90	359.80	3,216.11	3,936.08	25.75	3,936.16	0.48	0.43	-0.21
6,972.00	90.30	0.70	3,215.12	4,030.07	26.16	4,030.15	1.15	-0.64	0.96
7,065.00	89.30	1.60	3,215.45	4,123.05	28.03	4,123.14	1.45	-1.08	0.97
7,160.00	89.60	1.40	3,216.36	4,218.01	30.51	4,218.11	0.38	0.32	-0.21
7,253.00	90.20	1.20	3,216.52	4,310.99	32.62	4,311.10	0.68	0.65	-0.22
7,346.00	89.10	1.20	3,217.09	4,403.96	34.57	4,404.09	1.18	-1.18	0.00
7,440.00	89.00	0.20	3,218.65	4,497.94	35.72	4,498.07	1.07	-0.11	-1.06
7,534.00	89.50	359.60	3,219.88	4,591.93	35.56	4,592.06	0.83	0.53	-0.64
7,613.00	90.10	359.50	3,220.15	4,670.93	34.94	4,671.05	0.77	0.76	-0.13
Last Phoenix MWD Survey									
7,674.00	90.10	359.50	3,220.05	4,731.93	34.40	4,732.04	0.00	0.00	0.00
Projection to TD									

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
2,540.00	2,539.83	-5.45	-23.05	Tie-on to Gyro Survey
2,616.00	2,615.82	-4.67	-23.90	First Phoenix MWD Survey
7,613.00	3,220.15	4,670.93	34.94	Last Phoenix MWD Survey
7,674.00	3,220.05	4,731.93	34.40	Projection to TD

Checked By: _____ Approved By: _____ Date: _____