



PHOENIX
TECHNOLOGY SERVICES

June 4, 2015

Oil Conservation Division
State of New Mexico
811 S. First St.
Artesia, New Mexico 88210

Dear District 2 - Artesia

NM OIL CONSERVATION
ARTESIA DISTRICT

Re: Concho Resources Inc.
Lee 3 Fee #1H
Eddy County, NM
API #30-015-39586
Job No. 1513447

FEB 17 2016

RECEIVED

Enclosed please find the Survey Data Certification, and the original Plat and one copy of the Survey Report performed on the above referenced Well by Phoenix Technology Services, Inc. (P-5 No. 664171). Other information required by your office is as follows:

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
		From	To	Start	End	
Lee Conoly	1H	2,568	7,440	05/03/15	05/08/15	MWD

A certified plat on which the bottom hole location is oriented both to the surface location and to the lease lines (or unit lines in case of pooling) is attached to the survey report. If any other information is required, please contact the undersigned at the letterhead address and phone number.

Best Regards,

Alva Dunigan

Alva Dunigan
Operations Administrator

Certified mail receipt number: 7011 1570 0001 4365 0601

Phoenix Technology Services
SURVEY DATA CERTIFICATION



PHOENIX JOB NUMBER 1513447

ENERGY COMPANY Concho

WELL NAME Lee 3 Fee #1H

COUNTY & STATE

Eddy New Mexico

API WELL NUMBER 30-015-39586

PROPOSED DIRECTION 359.58

TIE-IN DATA						
MEASURED	VERTICAL			N-S	E-W	DATA
DEPTH	DEPTH	INCLIN	AZIMUTH	COORD	COORD	SOURCE
2,524. ft	2,523.47 ft	0.47	343.31	29.52 ft	-26.58 ft	Gyro

FIRST	FIRST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
3-May-15	2,568.00 ft	0.20	320.80

SURVEY INSTRUMENT
TYPE
Phoenix MWD

LAST	LAST		
SURVEY	SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
8-May-15	7,440.00 ft	91.60	358.90

TO THE BEST OF MY KNOWLEDGE I
CERTIFY THIS SURVEY DATA TO BE
TRUE AND CORRECT.

PROJECTED	PROJECTED		
TD SURVEY	TD SURVEY		
DATE	DEPTH	INCLIN	AZIMUTH
8-May-15	7,500.00 ft	91.60	358.90

William K. Gutierrez

PRINT YOUR NAME ABOVE

William K. Gutierrez

SIGN YOUR NAME ABOVE

MAGNETIC DECLINATION OR TOTAL GRID

TOTAL CORRECTION USED	7.64
DECLINATION OR GRID	DECLINATION

5/8/2015

TODAY'S DATE

MWD SUPERVISOR 1

Lee Conoly

DIRECTIONAL DRILLER 1

Michael Crall

MWD SUPERVISOR 2

William Gutierrez

DIRECTIONAL DRILLER 2

James Thames



COG Operating LLC

Eddy County, NM (NAD27 NME)

Lee 3 Fee

#1H

WB1 / Job #1513447

Survey: Phoenix MWD Survey

Standard Survey Report

09 May, 2015

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 17 2016
RECEIVED





Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3362.00usft (Silver Oak 3)
Site:	Lee 3 Fee	MD Reference:	KB @ 3362.00usft (Silver Oak 3)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1 / Job #1513447	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000 GCR

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	Lee 3 Fee		
Site Position:	Map	Northing:	612,139.80 usft
From:		Easting:	488,590.40 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 40' 58.31847 N
		Longitude:	104° 22' 13.49969 W
		Grid Convergence:	-0.02 °

Well	#1H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 41' 0.24770 N
		Longitude:	104° 22' 36.40464 W
		Ground Level:	3,344.00 usft

Wellbore	WB1 / Job #1513447				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	4/27/2015	7.62	60.57	48,414

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	359.98

Survey Program	Date 5/8/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	2,524.00	VES Gyro Survey (WB1 / Job #1513447)	NS-GYRO-MS	North sensing gyrocompassing m/s
2,568.00	7,004.00	Phoenix MWD Survey (WB1 / Job #15134)	PHX+MWD+HDGM	PHX+MWD+HDGM

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)
2,524.00	0.47	343.31	2,523.47	29.52	-26.58	29.53	0.00	0.00	0.00
Tie-on to VES Gyro Survey									
2,568.00	0.20	320.80	2,567.47	29.75	-26.68	29.76	0.67	-0.61	-51.16
First Phoenix MWD Survey									
2,599.00	0.90	344.00	2,598.47	30.03	-26.78	30.04	2.32	2.26	74.84
2,630.00	3.40	358.80	2,629.45	31.18	-26.87	31.19	8.19	8.06	47.74
2,662.00	5.80	353.10	2,661.34	33.74	-27.08	33.75	7.63	7.50	-17.81
2,693.00	8.30	358.90	2,692.10	37.53	-27.31	37.54	8.37	8.06	18.71
2,724.00	11.40	0.10	2,722.64	42.83	-27.35	42.84	10.02	10.00	3.87



Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3362.00usft (Silver Oak 3)
Site:	Lee 3 Fee	MD Reference:	KB @ 3362.00usft (Silver Oak 3)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1 / Job #1513447	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000 GCR

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)
2,756.00	13.40	3.10	2,753.90	49.70	-27.14	49.71	6.56	6.25	9.38
2,788.00	15.20	2.20	2,784.90	57.59	-26.78	57.60	5.67	5.63	-2.81
2,819.00	17.90	359.60	2,814.62	66.42	-26.66	66.43	9.03	8.71	-8.39
2,851.00	21.60	357.60	2,844.73	77.22	-26.94	77.23	11.75	11.56	-6.25
2,882.00	25.20	357.00	2,873.18	89.52	-27.53	89.53	11.64	11.61	-1.94
2,914.00	28.40	358.10	2,901.73	103.93	-28.14	103.94	10.12	10.00	3.44
2,945.00	31.50	359.50	2,928.59	119.40	-28.45	119.41	10.25	10.00	4.52
2,977.00	34.60	1.00	2,955.41	136.85	-28.36	136.86	10.02	9.69	4.69
3,008.00	38.20	2.00	2,980.36	155.24	-27.88	155.25	11.77	11.61	3.23
3,040.00	41.40	2.80	3,004.94	175.70	-27.01	175.71	10.13	10.00	2.50
3,072.00	44.20	3.80	3,028.42	197.40	-25.76	197.41	9.00	8.75	3.13
3,103.00	47.80	4.40	3,049.95	219.64	-24.16	219.65	11.70	11.61	1.94
3,134.00	50.90	4.30	3,070.14	243.09	-22.38	243.10	10.00	10.00	-0.32
3,166.00	53.60	4.30	3,089.73	268.32	-20.48	268.33	8.44	8.44	0.00
3,198.00	56.60	4.00	3,108.04	294.49	-18.58	294.50	9.41	9.38	-0.94
3,229.00	59.90	3.70	3,124.35	320.79	-16.81	320.80	10.68	10.65	-0.97
3,260.00	62.80	3.80	3,139.21	347.93	-15.03	347.94	9.36	9.35	0.32
3,291.00	65.30	3.50	3,152.77	375.75	-13.26	375.75	8.11	8.06	-0.97
3,322.00	68.10	2.80	3,165.03	404.17	-11.70	404.18	9.27	9.03	-2.26
3,354.00	70.90	2.00	3,176.24	434.12	-10.44	434.12	9.06	8.75	-2.50
3,385.00	73.60	2.30	3,185.69	463.62	-9.34	463.62	8.76	8.71	0.97
3,417.00	76.20	2.70	3,194.03	494.48	-7.99	494.49	8.21	8.13	1.25
3,448.00	79.00	2.60	3,200.68	524.72	-6.59	524.73	9.04	9.03	-0.32
3,480.00	82.20	2.50	3,205.91	556.26	-5.18	556.26	10.00	10.00	-0.31
3,500.00	84.90	2.50	3,208.15	576.11	-4.32	576.11	13.50	13.50	0.00
3,531.00	87.10	1.10	3,210.32	607.02	-3.35	607.02	8.41	7.10	-4.52
3,594.00	88.30	1.70	3,212.84	669.95	-1.81	669.95	2.13	1.90	0.95
3,689.00	89.80	0.80	3,214.42	764.91	0.26	764.91	1.84	1.58	-0.95
3,783.00	89.90	359.60	3,214.67	858.91	0.59	858.91	1.28	0.11	-1.28
3,878.00	89.90	0.10	3,214.83	953.90	0.34	953.90	0.53	0.00	0.53
3,973.00	89.90	0.10	3,215.00	1,048.90	0.51	1,048.90	0.00	0.00	0.00
4,068.00	91.10	359.80	3,214.17	1,143.90	0.43	1,143.90	1.30	1.26	-0.32
4,162.00	91.00	0.00	3,212.45	1,237.88	0.26	1,237.88	0.24	-0.11	0.21
4,257.00	91.10	359.90	3,210.70	1,332.87	0.18	1,332.87	0.15	0.11	-0.11
4,352.00	91.00	0.10	3,208.96	1,427.85	0.18	1,427.85	0.24	-0.11	0.21
4,447.00	91.20	0.00	3,207.14	1,522.83	0.26	1,522.83	0.24	0.21	-0.11
4,542.00	91.30	0.60	3,205.07	1,617.81	0.76	1,617.81	0.64	0.11	0.63
4,636.00	91.30	0.30	3,202.94	1,711.78	1.50	1,711.78	0.32	0.00	-0.32
4,732.00	91.00	0.30	3,201.01	1,807.76	2.00	1,807.76	0.31	-0.31	0.00
4,827.00	90.80	0.30	3,199.52	1,902.75	2.50	1,902.75	0.21	-0.21	0.00
4,921.00	90.90	0.30	3,198.12	1,996.74	2.99	1,996.73	0.11	0.11	0.00
5,016.00	90.90	359.40	3,196.63	2,091.72	2.74	2,091.72	0.95	0.00	-0.95
5,110.00	90.90	359.40	3,195.15	2,185.71	1.76	2,185.71	0.00	0.00	0.00



Survey Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3362.00usft (Silver Oak 3)
Site:	Lee 3 Fee	MD Reference:	KB @ 3362.00usft (Silver Oak 3)
Well:	#1H	North Reference:	Grid
Wellbore:	WB1 / Job #1513447	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Silver Oak 3)	Database:	Compass 5000 GCR

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)
5,205.00	90.60	359.30	3,193.91	2,280.69	0.68	2,280.69	0.33	-0.32	-0.11
5,300.00	91.40	359.20	3,192.25	2,375.67	-0.57	2,375.67	0.85	0.84	-0.11
5,395.00	91.10	359.20	3,190.18	2,470.64	-1.89	2,470.64	0.32	-0.32	0.00
5,489.00	90.90	1.00	3,188.54	2,564.62	-1.73	2,564.62	1.93	-0.21	1.91
5,584.00	90.90	0.20	3,187.05	2,659.60	-0.73	2,659.60	0.84	0.00	-0.84
5,679.00	90.70	0.00	3,185.72	2,754.59	-0.57	2,754.59	0.30	-0.21	-0.21
5,773.00	90.60	359.90	3,184.65	2,848.58	-0.65	2,848.59	0.15	-0.11	-0.11
5,868.00	91.70	359.70	3,182.75	2,943.56	-0.98	2,943.56	1.18	1.16	-0.21
5,963.00	91.40	0.30	3,180.18	3,038.53	-0.98	3,038.53	0.71	-0.32	0.63
6,058.00	91.30	359.90	3,177.94	3,133.50	-0.81	3,133.50	0.43	-0.11	-0.42
6,153.00	91.30	359.90	3,175.78	3,228.48	-0.98	3,228.48	0.00	0.00	0.00
6,247.00	91.20	359.60	3,173.73	3,322.45	-1.39	3,322.45	0.34	-0.11	-0.32
6,342.00	90.80	0.80	3,172.08	3,417.44	-1.06	3,417.44	1.33	-0.42	1.26
6,436.00	90.80	0.70	3,170.76	3,511.42	0.17	3,511.42	0.11	0.00	-0.11
6,532.00	90.70	0.50	3,169.51	3,607.41	1.18	3,607.41	0.23	-0.10	-0.21
6,626.00	90.50	0.30	3,168.52	3,701.40	1.83	3,701.40	0.30	-0.21	-0.21
6,720.00	90.90	0.40	3,167.37	3,795.39	2.41	3,795.39	0.44	0.43	0.11
6,815.00	91.70	359.90	3,165.22	3,890.36	2.66	3,890.36	0.99	0.84	-0.53
6,910.00	91.70	359.70	3,162.40	3,985.32	2.32	3,985.32	0.21	0.00	-0.21
7,004.00	91.70	359.70	3,159.61	4,079.28	1.83	4,079.28	0.00	0.00	0.00
7,099.00	92.00	359.60	3,156.54	4,174.23	1.25	4,174.23	0.33	0.32	-0.11
7,194.00	90.90	358.40	3,154.14	4,269.18	-0.41	4,269.18	1.71	-1.16	-1.26
7,288.00	91.70	358.10	3,152.01	4,363.11	-3.28	4,363.11	0.91	0.85	-0.32
7,384.00	91.20	358.90	3,149.58	4,459.05	-5.79	4,459.05	0.98	-0.52	0.83
7,440.00	91.60	358.90	3,148.21	4,515.02	-6.86	4,515.02	0.71	0.71	0.00
Last Phoenix MWD Survey									
7,500.00	91.60	358.90	3,146.53	4,574.98	-8.01	4,574.99	0.00	0.00	0.00
Projection to TD									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N-S (usft)	+E-W (usft)	
2,524.00	2,523.47	29.52	-26.58	Tie-on to VES Gyro Survey
2,568.00	2,567.47	29.75	-26.68	First Phoenix MWD Survey
7,440.00	3,148.21	4,515.02	-6.86	Last Phoenix MWD Survey
7,500.00	3,146.53	4,574.98	-8.01	Projection to TD

Checked By: _____ Approved By: _____ Date: _____