



September 27, 2017

NM OIL CONSERVATION

ARTESIA DISTRICT

JAN 19 2018

RECEIVED

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

Attn: Kanicia Castillo

RE: **Carmen 3 Federal Com No. 091H**

30-015-44271

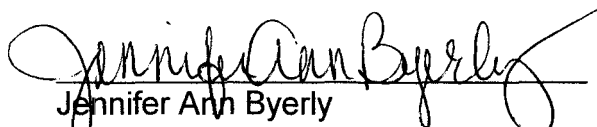
Please find enclosed a copy of the survey from 0' to 1410' ran on the above referenced well.

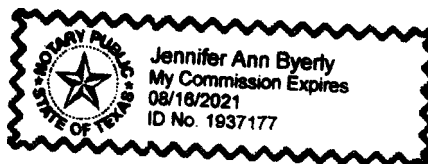
Sincerely,

Keith Havelka
Operations

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 27th day of September, A.D., 2017, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas





Company: COG/CONCHO
Lease/Well: CARMEN 3 FEDERAL COM No.091H
Rig Name: SILVER OAK 3
State/County: NEW MEXICO/EDDY
VS-Azi: 0.00 Degrees
Latitude: 32.86947, Longitude: -103.95121
Grid North = True North -0.21 degs (NAD 27)
Grid Correction Applied = -0.21 degs

Depth Reference : RKB 18 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: e-line gyro-de_01.ut
Minimum Curvature Method
Report Date/Time: 9/27/2017 / 13:13

VES Survey International
Midland, TX
432-563-5444

Surveyor: Andrew Meadville
Carmen 3 Federal Com No. 091H / API 30-015-44271

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	0.35	67.46	100.00	0.12	0.28	0.12	0.31	67.46	0.35
200.00	1.06	71.00	199.99	0.54	1.45	0.54	1.54	69.58	0.71
300.00	0.86	122.49	299.98	0.44	2.96	0.44	2.99	81.64	0.86
400.00	0.53	176.62	399.97	-0.43	3.62	-0.43	3.65	96.82	0.70
500.00	0.79	199.53	499.97	-1.54	3.42	-1.54	3.75	114.25	0.36
600.00	0.96	187.43	599.95	-3.02	3.08	-3.02	4.32	134.37	0.25
700.00	1.02	184.62	699.94	-4.74	2.90	-4.74	5.56	148.49	0.08
800.00	0.81	177.26	799.93	-6.34	2.87	-6.34	6.95	155.65	0.24
900.00	0.70	172.82	899.92	-7.65	2.98	-7.65	8.21	158.73	0.12
1000.00	0.64	160.60	999.91	-8.78	3.24	-8.78	9.36	159.76	0.16
1100.00	0.35	140.28	1099.91	-9.55	3.62	-9.55	10.21	159.23	0.33
1200.00	0.23	145.16	1199.91	-9.95	3.93	-9.95	10.69	158.44	0.12
1300.00	0.27	148.12	1299.90	-10.31	4.17	-10.31	11.12	157.98	0.04
1400.00	0.50	150.18	1399.90	-10.89	4.51	-10.89	11.78	157.50	0.23
1410.00	0.55	153.32	1409.90	-10.97	4.55	-10.97	11.87	157.46	0.63



VES Survey International
Midland, TX
432-563-5444

Surveyor: Andrew Meadville
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20

Depth=0.0, Inc=0.0, AzG=0.0
Z

Depth=1410.0, Inc=0.6, AzG=153.3

0

20

-W/+E

V.E.S. Survey Date: 9/22/2017



I Andrew Meadville certify that I am employed by VES Survey International. That I did on the day(s) of 09/23/17 through 09/23/17 conduct or supervise the taking of a Rate Gyro survey from a depth of 0.00 feet to a depth of 1,410.00 feet; that the data is true, correct, complete and within the limitations of the tool as set forth by Vaughn Energy Services, that I am authorized and qualified to make this report; that this survey was conducted at the request of COG/ Concho for the Carmen 3 Federal Com Well # #91H API # 30-015-44271 in Eddy County / Parish New Mexico; and that I have reviewed this report and find that it conforms to the principles and procedures as set forth by VES Survey International.

A handwritten signature in black ink, appearing to read "A R M", written over a horizontal line.

Andrew Meadville
Service Technician
VES Survey International