

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTNM OIL CONSERVATION
NMOC DISTRICT
SEP 13 2017
RECEIVEDFORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No.
NMNM86025

1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other			6. If Indian, Allottee or Tribe Name		
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr. Other _____			7. Unit or CA Agreement Name and No.		
2. Name of Operator COG OPERATING LLC			Contact: KANICIA CASTILLO E-Mail: kcastillo@concho.com		
3. Address 600 W ILLINOIS AVENUE MIDLAND, TX 79701			3a. Phone No. (include area code) Ph: 432-685-4332		
4. Location of Well (Report location clearly and in accordance with Federal requirements)* At surface Sec 17 T17S R30E Mer NMP SWSW 465FSL 285FWL At top prod interval reported below Sec 17 T17S R30E Mer NMP SWSW 440FSL 330FWL At total depth Sec 16 T17S R30E Mer NMP SWSW 356FSL 589FWL			8. Lease Name and Well No. MCINTYRE DK FEDERAL COM 28H		
14. Date Spudded 03/27/2017			15. Date T.D. Reached 04/10/2017		
16. Date Completed ☐ D & A ☒ Ready to Prod. 06/01/2017			9. API Well No. 30-015-41273-00-S1		
18. Total Depth: MD 10492 TVD 4957			19. Plug Back T.D.: MD 10416 TVD 4957		
20. Depth Bridge Plug Set: MD TVD			10. Field and Pool, or Exploratory LOCO HILLS-GLORIETA-YESO		
21. Type Electric & Other Mechanical Logs Run (Submit copy of each) CN			11. Sec., T., R., M., or Block and Survey or Area Sec 17 T17S R30E Mer NMP		
12. County or Parish EDDY			13. State NM		
17. Elevations (DF, KB, RT, GL)* 3608 GL			12. County or Parish EDDY		
22. Was well cored? ☒ No ☐ Yes (Submit analysis) Was DST run? ☒ No ☐ Yes (Submit analysis) Directional Survey? ☐ No ☒ Yes (Submit analysis)			13. State NM		

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
17.500	13.375 J-55	54.5	0	293		C 600		0	
12.250	9.625 J-55	40.0	0	1127		C 950		0	
8.750	7.000 L-80	29.0	0	4261				0	
8.750	5.000 L-80	17.0	4261	10492		C 2100		4261	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2.875	5157							

25. Producing Intervals

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) YESO	5156	10396	5156 TO 10396	0.430	1188	OPEN - Yeso
B)						
C)						
D)						

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
5156 TO 10396	ACIDIZE W/ 131,040 15% ACID, FRAC W/ 407,946 GALS TREATED WATER, 8,114,106 GALS SLICK WATER.

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
06/01/2017	06/06/2017	24	→	303.0	192.0	943.0	40.4	0.60	ELECTRIC PUMP SUB-SURFACE
Choke Size	Tbg. Press. Flwg. SI	Csg. Press. 70.0	24 Hr. Rate →	Oil BBL 303	Gas MCF 192	Water BBL 943	Gas:Oil Ratio 634	Well Status POW	

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #379975 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED

PETROLEUM ENGINEER

RECLAMATION DUE:
DEC 01 2017

DAVID R. GLASS

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

29. Disposition of Gas(Sold, used for fuel, vented, etc.)
SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
RUSTLER	250	540		RUSTLER	250
SALADO	540	990		TOP SALT	540
YATES	1142	1284		BASE OF SALT	990
SEVEN RIVERS	1284	2029		YATES	1142
QUEEN	2029	2422		SEVEN RIVERS	1284
GRAYBURG	2422	2747	SANDSTONE	QUEEN	2029
SAN ANDRES	2747	4213	DOLOMITE & ANHYDRITE	GRAYBURG	2422
PADDOCK	4213	4791	DOLOMITE & ANHYDRITE	SAN ANDRES	2747
BLINEBRY	4791	10492	DOLOMITE	PADDOCK	4213
YESO	5056	10396	OILGASIWATER	BLINEBRY	4791

32. Additional remarks (include plugging procedure):
Logs will be submitted in WIS.

33. Circle enclosed attachments:

- | | | | |
|---|--------------------|---------------|-----------------------|
| 1. Electrical/Mechanical Logs (1 full set req'd.) | 2. Geologic Report | 3. DST Report | 4. Directional Survey |
| 5. Sundry Notice for plugging and cement verification | 6. Core Analysis | 7. Other: | |

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #379975 Verified by the BLM Well Information System.
For COG OPERATING LLC, sent to the Carlsbad
Committed to AFMSS for processing by DEBORAH HAM on 07/17/2017 (17DMH0131SE)

Name (please print) KANICIA CASTILLOTitle PREPARER

Signature _____ (Electronic Submission)

Date 06/28/2017

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ****

DISTRICT I
1025 N. French Dr. Hobbs, NM 88241
Phone: (505) 334-1151 Fax: (505) 334-1172

DISTRICT II
911 S. First St. Artesia, NM 88210
Phone: (505) 748-1263 Fax: (505) 748-9720

DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87412
Phone: (505) 334-0178 Fax: (505) 334-6170

DISTRICT IV
1220 S. St. Francis Dr. Santa Fe, NM 87505
Phone: (505) 476-7400 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

NM OIL CONSERVATION

ARTESIA DISTRICT

SEP 13 2017

Form C-102
Revised August 1, 2011
Print one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

RECEIVED

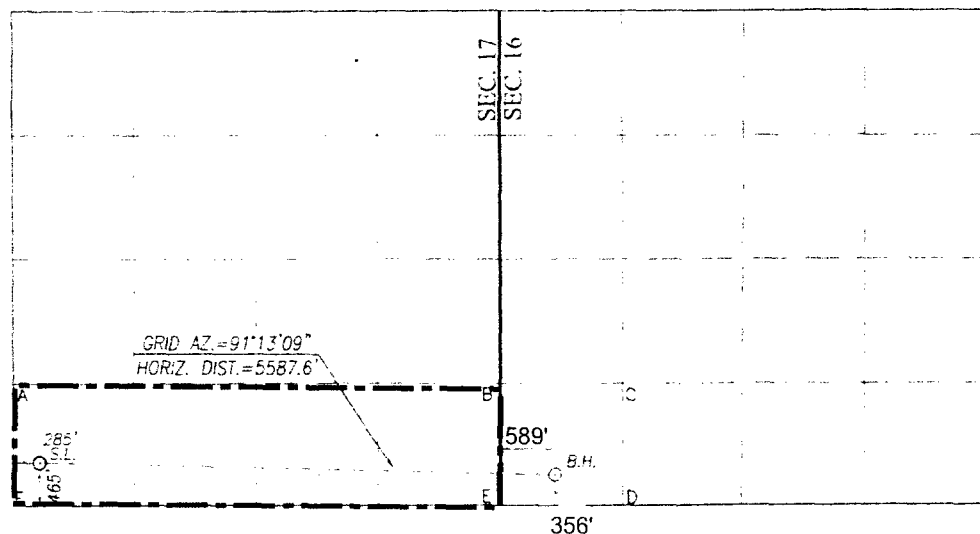
API Number: 30-015-41273		Pool Code: 96718	Pool Name: Loco Hills; Glorieta-Yeso
Property Code: 302524	Property Name: MCINTYRE DK FEDERAL COM		Well Number: 28H
GRID No: 229137	Operator Name: COG OPERATING, LLC		Elevation: 3646'

Surface Location									
UL or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	17	17-S	30-E		465	SOUTH	285	WEST	EDDY

Bottom Hole Location If Different From Surface									
UL or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	16	17-S	30-E		356	SOUTH	589	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No
160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

KC 6/27/17
Signature Date

Kanicia Castillo
Printed Name

kcastillo@concho.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

SEPTEMBER 10, 2011

Date of Survey
Signature & Seal of Professional Surveyor

Ronald J. Eidson 01/06/2016
Certificate Number Gary G. Eidson 12641
Ronald J. Eidson 3239

GEODETIC COORDINATES
NAD 27 NME
SURFACE LOCATION
Y=665262.2 N
X=601988.9 E
LAT.=32.828452° N
LONG.=104.001312° W

CORNER COORDINATES TABLE
NAD 27 NME
A - Y= 666116.7 N, X= 601700.9 E
B - Y= 666132.7 N, X= 606980.5 E
C - Y= 666135.0 N, X= 608301.6 E
D - Y= 664814.6 N, X= 608306.2 E
E - Y= 664812.4 N, X= 606985.3 E
F - Y= 664796.4 N, X= 601705.4 E

GEODETIC COORDINATES
NAD 27 NME
BOTTOM HOLE LOCATION
Y=665143.2 N
X=607573.9 E
LAT.=32.828076° N
LONG.=103.983132° W

GEODETIC COORDINATES
NAD 83 NME
SURFACE LOCATION
Y=665325.7 N
X=643167.9 E
LAT.=32.828568° N
LONG.=104.001820° W

CORNER COORDINATES TABLE
NAD 83 NME
A - Y= 666180.2 N, X= 642879.9 E
B - Y= 666196.2 N, X= 648159.4 E
C - Y= 666198.6 N, X= 649480.5 E
D - Y= 664878.1 N, X= 649485.1 E
E - Y= 664875.9 N, X= 648164.2 E
F - Y= 664859.9 N, X= 642884.4 E

GEODETIC COORDINATES
NAD 83 NME
BOTTOM HOLE LOCATION
Y=665206.8 N
X=648752.9 E
LAT.=32.828192° N
LONG.=103.983640° W

ACK REI W.O. 1413153 JWSCW.O. 16130000



CONCHO

NM OIL CONSERVATION
ARTESIA DISTRICT
SEP 13 2017

COG Operating LLC

Eddy County, NM (NAD-27 2015)

McIntyre DK Federal Com #28H

API #: 30-015-41273

SHL: 465' FSL, 285' FWL, Sec 17, T17S, R30E, Unit M

PP: 440' FSL, 330' FWL, Sec 17, T17S, R30E, Unit M

BHL: 356' FSL, 589' FWL, Sec 16, T17S, R30E, Unit M

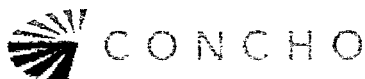
RECEIVED

Design: BHL: 350' FSL, 590' FWL, Sec 16, T17S, R30E, Unit M

Standard Survey Report

11 April, 2017





TDS
Survey Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Site: McIntyre DK Federal Com #28H
Well: SHL: 465' FSL, 285' FWL, Sec 17, T17S, R30E Unit M
Wellbore: BHL: 350' FSL, 590' FWL, Sec 16, T17S, R30E, Unit M
Design: BHL: 350' FSL, 590' FWL, Sec 16, T17S, R30E, Unit M

Local Co-ordinate Reference: Well SHL: 465' FSL, 285' FWL, Sec 17, T17S, R30E, Unit M
TVD Reference: KB @ 3664.00usft (Patriot 6)
MD Reference: KB @ 3664.00usft (Patriot 6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Eddy County, NM (NAD-27 2015)		
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	McIntyre DK Federal Com #28H			
Site Position:	Northings:	665,262.20 usft	Latitude:	32° 49' 42.428 N
From: Map	Easting:	601,988.90 usft	Longitude:	104° 0' 4.724 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence: 0.18 "

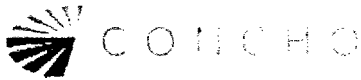
Well	SHL: 465' FSL, 285' FWL, Sec 17, T17S, R30E, Unit M			
Well Position	+N/-S	0.00 usft	Northings:	665,262.20 usft
	+E/-W	0.00 usft	Easting:	601,988.90 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level: 3 646.00 usft

Wellbore	BHL: 350' FSL, 590' FWL, Sec 16, T17S, R30E, Unit M			
Magnetics:	Model Name	Sample Date	Declination (°)	Dip Angle (°)
	IGRF2015	1/26/2016	7.35	60.58
				Field Strength (nT) 48,383

Design	BHL: 350' FSL, 590' FWL, Sec 16, T17S, R30E, Unit M			
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	91.02

Survey Program	Data 4/11/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.00	1,030.00	VES Gyro #1 (BHL: 350' FSL, 590' FWL, S	VES-ISCWSA-GYRO-3	B axial Semi-Cont. Gyro
1,138.00	10,492.00	TDS MWD #2 (BHL: 350' FSL, 590' FWL,	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)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	100.00	0.14	141.00	100.00	-0.09	0.08	0.08	0.14	0.14	0.00
	200.00	0.23	157.35	200.00	-0.38	0.23	0.24	0.10	0.09	16.35
	300.00	0.37	92.98	300.00	-0.58	0.63	0.64	0.34	0.14	-64.37
	400.00	0.91	69.80	399.99	-0.32	1.70	1.70	0.59	0.54	-23.18
	500.00	1.24	88.65	499.97	0.02	3.52	3.52	0.45	0.33	18.85
	600.00	1.51	94.75	599.95	-0.03	5.92	5.92	0.33	0.27	8.10



TDS
Survey Report

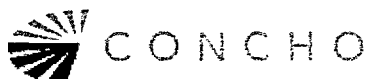


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Local Co-ordinate Reference: Well SHL: 465' FSL, 285' FWL, Sec 17 T17S R30E, Unit M
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MD Reference: KB @ 3664.00usft (Patriot 6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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)
700.00	1.68	93.50	699.91	-0.23	8.69	8.70	0.17	0.17	-1.25
800.00	1.82	88.10	799.86	-0.26	11.74	11.75	0.22	0.14	-5.40
900.00	2.24	89.86	899.80	-0.21	15.28	15.29	0.42	0.42	1.78
1,000.00	2.38	89.02	999.72	-0.17	19.32	19.32	0.14	0.14	-0.84
1,030.00	2.50	87.47	1,029.69	-0.13	20.59	20.59	0.46	0.40	-5.17
Tie-In to VES Gyro Survey									
1,138.00	3.00	93.20	1,137.56	-0.18	25.77	25.77	0.53	0.46	5.31
First TDS MWD Survey									
1,201.00	2.70	101.90	1,200.49	-0.58	28.86	28.87	0.83	-0.48	13.81
1,295.00	1.80	212.90	1,294.44	-2.27	30.23	30.27	3.98	-0.96	118.09
1,389.00	4.10	247.20	1,388.32	-4.82	26.33	26.41	2.98	2.45	36.49
1,484.00	5.50	252.20	1,482.98	-7.53	18.86	18.99	1.54	1.47	5.26
1,579.00	5.30	253.90	1,577.56	-10.13	10.31	10.49	0.27	-0.21	1.79
1,673.00	6.80	263.60	1,671.04	-11.96	0.61	0.82	1.93	1.60	10.32
1,767.00	6.10	262.20	1,764.44	-13.26	-9.87	-9.63	0.76	-0.74	-1.49
1,862.00	5.50	260.60	1,858.96	-14.68	-19.36	-19.10	0.65	-0.63	-1.68
1,956.00	4.60	262.10	1,952.59	-15.94	-27.54	-27.25	0.97	-0.96	1.60
2,051.00	5.50	270.70	2,047.22	-16.41	-35.86	-35.57	1.24	0.95	9.05
2,144.00	7.30	270.60	2,139.64	-18.29	-46.23	-45.93	1.94	1.94	-0.11
2,239.00	6.90	270.40	2,233.91	-16.19	-57.97	-57.67	0.42	-0.42	-0.21
2,334.00	5.90	270.30	2,328.32	-16.12	-68.56	-68.26	1.05	-1.05	-0.11
2,429.00	6.60	267.90	2,422.75	-16.30	-78.90	-78.60	0.79	0.74	-2.53
2,522.00	8.00	269.40	2,515.00	-16.56	-90.71	-90.40	1.52	1.51	1.61
2,616.00	8.00	269.70	2,608.08	-16.66	-103.79	-103.48	0.04	0.00	0.32
2,711.00	7.60	270.20	2,702.20	-16.68	-116.69	-116.37	0.43	-0.42	0.53
2,805.00	7.30	270.30	2,795.41	-16.62	-128.87	-128.56	0.32	-0.32	0.11
2,900.00	7.00	269.40	2,889.67	-16.65	-140.70	-140.38	0.34	-0.32	-0.95
2,994.00	6.60	270.50	2,983.01	-16.66	-151.83	-151.51	0.45	-0.43	1.17
3,089.00	6.20	266.00	3,077.42	-16.97	-162.40	-162.08	0.68	-0.42	-4.74
3,183.00	5.70	257.30	3,170.91	-18.35	-172.02	-171.67	1.10	-0.53	-9.26
3,278.00	5.70	257.40	3,265.44	-20.42	-181.23	-180.84	0.01	0.00	0.11
3,371.00	6.80	260.50	3,357.89	-22.34	-181.17	-180.74	1.24	1.18	3.33
3,466.00	7.00	262.00	3,452.20	-24.07	-202.45	-201.99	0.28	0.21	1.58
3,560.00	6.80	261.10	3,545.52	-25.73	-213.82	-213.12	0.24	-0.21	-0.96
3,655.00	6.40	262.30	3,639.89	-27.31	-224.42	-223.90	0.45	-0.42	1.26
3,749.00	6.20	261.10	3,733.32	-28.80	-234.63	-234.08	0.25	-0.21	-1.28
3,844.00	5.00	260.80	3,827.87	-30.25	-243.78	-243.20	1.26	-1.26	-0.32
3,939.00	3.50	259.60	3,922.60	-31.44	-250.72	-250.12	1.58	-1.58	-1.26
4,034.00	2.20	270.00	4,017.48	-31.96	-255.40	-254.79	1.47	-1.37	10.95
4,128.00	1.00	25.30	4,111.48	-31.22	-256.85	-256.25	2.96	-1.28	122.66
4,222.00	1.00	38.70	4,205.45	-29.84	-255.99	-255.42	0.25	0.00	14.26



TDS
Survey Report

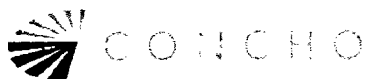


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Project: Eddy County, NM (NAD-27 2015)
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TVD Reference: KB @ 3664.00usft (Patriot 6)
MD Reference: KB @ 3664.00usft (Patriot 6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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)
4,285.00	2.50	70.00	4,268.42	-28.94	-254.35	-253.80	2.74	2.38	49.68
4,317.00	5.00	76.00	4,300.35	-28.36	-252.34	-251.60	7.90	7.81	18.75
4,348.00	7.30	77.50	4,331.17	-27.61	-249.11	-248.58	7.44	7.42	4.84
4,378.00	9.80	75.90	4,360.83	-26.57	-244.77	-244.26	8.37	8.33	-5.33
4,409.00	12.40	74.10	4,391.25	-25.02	-239.01	-238.53	8.46	8.39	-5.81
4,443.00	18.10	75.30	4,424.20	-22.82	-230.94	-230.49	10.92	10.88	3.53
4,475.00	18.60	76.50	4,454.65	-20.44	-221.42	-221.02	11.00	10.94	3.75
4,507.00	22.30	81.90	4,484.54	-18.33	-210.19	-209.83	10.36	8.44	18.88
4,537.00	25.00	88.50	4,512.02	-17.37	-198.21	-197.87	12.59	9.00	22.00
4,570.00	28.40	93.70	4,541.50	-17.69	-183.41	-183.08	12.49	10.30	15.76
4,602.00	32.90	96.30	4,569.02	-19.13	-167.16	-166.80	14.66	14.06	8.13
4,634.00	37.00	96.50	4,595.25	-21.18	-148.95	-148.55	12.82	12.81	0.63
4,665.00	40.60	95.10	4,619.40	-23.13	-129.63	-129.20	11.95	11.61	-4.52
4,696.00	43.70	92.20	4,642.38	-24.44	-108.87	-108.42	11.81	10.00	-9.35
4,728.00	46.70	91.10	4,664.93	-25.09	-86.18	-85.72	9.69	9.38	-3.44
4,760.00	47.60	90.60	4,686.69	-25.44	-62.72	-62.26	3.04	2.81	-1.56
4,791.00	47.30	90.40	4,707.66	-25.64	-39.89	-39.42	1.08	-0.97	-0.65
4,823.00	48.90	90.00	4,729.44	-25.72	-16.44	-15.98	1.55	-1.25	-1.25
4,854.00	46.40	89.40	4,750.72	-25.60	6.10	6.55	2.14	-1.61	-1.94
4,885.00	45.80	89.20	4,772.21	-25.33	28.43	28.88	1.99	-1.94	-0.65
4,917.00	45.50	89.00	4,794.58	-24.97	51.31	51.75	1.04	-0.94	-0.63
4,948.00	48.30	89.60	4,815.76	-24.89	73.94	74.37	9.14	9.03	1.94
4,980.00	52.30	91.50	4,838.20	-24.94	98.56	98.98	13.31	12.50	5.94
5,011.00	55.40	93.50	4,854.49	-25.04	123.56	124.00	11.27	10.00	6.45
5,043.00	58.20	94.30	4,872.01	-27.87	150.27	150.74	9.00	8.75	2.50
5,074.00	61.90	93.30	4,887.48	-29.64	177.07	177.56	12.26	11.94	-3.23
5,106.00	66.60	91.40	4,901.38	-30.81	205.65	206.37	15.63	14.69	-5.94
5,138.00	70.80	89.70	4,913.00	-31.09	235.66	236.17	14.03	13.13	-5.31
5,169.00	74.20	89.10	4,922.32	-30.78	265.22	265.72	11.12	10.97	-1.94
5,201.00	76.50	89.90	4,930.42	-30.51	296.17	296.67	7.58	7.19	2.50
5,233.00	78.80	91.30	4,937.23	-30.84	327.43	327.93	8.63	7.50	4.38
5,265.00	81.30	92.30	4,942.73	-31.83	358.94	359.45	8.11	7.50	3.13
5,296.00	84.00	93.00	4,946.70	-33.26	389.65	390.18	8.99	8.71	2.26
5,327.00	87.10	92.00	4,948.11	-34.60	420.52	421.07	10.50	10.00	-3.23
5,358.00	89.70	90.90	4,950.00	-35.41	452.50	453.05	8.82	8.13	-3.44
5,454.00	90.40	90.80	4,948.92	-36.82	547.48	548.05	0.74	0.74	-0.11
5,548.00	90.20	91.60	4,948.42	-38.81	642.46	643.05	0.87	-0.21	0.84
5,644.00	89.10	90.90	4,950.00	-40.88	737.44	738.05	1.37	-1.16	-0.74
5,739.00	88.90	89.50	4,951.66	-41.22	832.42	833.02	1.49	-0.21	-1.47
5,834.00	89.50	89.20	4,952.98	-40.14	927.40	927.97	0.71	0.63	-0.32
5,929.00	90.50	89.10	4,952.88	-38.73	1,022.39	1,022.92	1.06	1.05	-0.11



TDS
Survey Report



Company: COG Operating LLC

Project: Eddy County, NM (NAD-27 2015)
Site: McIntyre DK Federal Com #28H
Well: SHL 465' FSL, 285' FWL, Sec 17, T17S, R30E, Unit M
Wellbore: BHL 350' FSL, 590' FWL, Sec 16, T17S, R30E, Unit M
Design: BHL 350' FSL, 590' FWL, Sec 16, T17S, R30E, Unit M

Local Co-ordinate Reference: Well SHL 465' FSL, 285' FWL, Sec 17, T17S R30E, Unit M
TVD Reference: KB @ 3664.00usft (Patriot 6)
MD Reference: KB @ 3664.00usft (Patriot 6)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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)
6,024.00	90.30	89.80	4,952.32	-37.90	1,117.38	1,117.88	0.87	-0.21	0.84
6,117.00	90.30	89.60	4,951.83	-37.49	1,210.38	1,210.86	0.32	0.00	-0.32
6,212.00	90.10	90.20	4,951.50	-37.33	1,305.38	1,305.84	0.57	-0.21	0.63
6,307.00	89.50	90.20	4,951.83	-37.66	1,400.38	1,400.83	0.63	-0.63	0.00
6,402.00	89.60	90.40	4,952.58	-38.16	1,495.37	1,495.82	0.24	0.11	0.21
6,497.00	90.50	91.40	4,952.50	-39.65	1,590.36	1,590.81	1.42	0.95	1.05
6,592.00	89.80	92.00	4,952.16	-42.47	1,685.32	1,685.81	0.89	-0.63	0.63
6,687.00	89.50	91.30	4,952.66	-45.20	1,780.28	1,780.80	0.85	-0.42	-0.74
6,782.00	89.00	90.10	4,953.91	-46.36	1,875.26	1,875.79	1.37	-0.53	-1.26
6,877.00	89.50	89.40	4,955.15	-45.95	1,970.25	1,970.75	0.91	0.53	-0.74
6,971.00	89.10	89.90	4,956.30	-45.37	2,064.24	2,064.72	0.88	-0.43	0.53
7,097.00	89.90	90.70	4,957.40	-46.03	2,190.23	2,190.70	0.90	0.83	0.63
7,191.00	90.30	90.60	4,957.23	-47.10	2,284.22	2,284.70	0.44	0.43	-0.11
7,286.00	90.80	89.70	4,956.32	-47.35	2,379.22	2,379.68	1.08	0.53	-0.95
7,381.00	90.30	89.40	4,955.41	-46.60	2,474.21	2,474.65	0.61	-0.53	-0.32
7,474.00	90.50	90.20	4,954.76	-46.28	2,567.21	2,567.62	0.89	0.22	0.86
7,568.00	91.60	91.30	4,953.04	-47.51	2,661.18	2,661.60	1.65	1.17	1.17
7,663.00	91.40	91.60	4,950.55	-49.91	2,756.12	2,756.57	0.38	-0.21	0.32
7,758.00	90.20	91.60	4,949.22	-52.56	2,851.07	2,851.55	1.26	-1.26	0.00
7,853.00	90.50	92.30	4,948.64	-55.80	2,946.01	2,946.54	0.80	0.32	0.74
7,948.00	90.70	91.50	4,947.65	-58.95	3,040.95	3,041.52	0.87	0.21	-0.84
8,043.00	90.40	91.90	4,946.74	-61.76	3,135.91	3,136.51	0.53	-0.32	0.42
8,137.00	89.80	91.00	4,946.57	-64.14	3,229.88	3,230.51	1.15	-0.64	-0.96
8,232.00	90.00	90.30	4,946.74	-65.22	3,324.87	3,325.50	0.77	0.21	-0.74
8,327.00	89.90	90.60	4,946.82	-65.97	3,419.87	3,420.50	0.33	-0.11	0.32
8,421.00	89.50	91.30	4,947.31	-67.53	3,513.85	3,514.50	0.86	-0.43	0.74
8,516.00	89.10	90.70	4,948.47	-69.16	3,608.83	3,609.49	0.76	-0.42	-0.63
8,611.00	90.10	91.50	4,949.14	-71.01	3,703.81	3,704.48	1.35	1.05	0.84
8,706.00	90.70	91.40	4,948.47	-73.41	3,798.77	3,799.48	0.64	0.63	-0.11
8,801.00	90.50	90.50	4,947.48	-74.99	3,893.75	3,894.47	0.97	-0.21	-0.95
8,895.00	90.40	90.90	4,946.74	-76.13	3,987.74	3,988.47	0.44	-0.11	0.43
8,991.00	90.00	91.30	4,946.41	-77.98	4,083.73	4,084.47	0.59	-0.42	0.42
9,086.00	90.20	92.20	4,945.24	-80.88	4,178.68	4,179.46	0.97	0.21	0.95
9,180.00	89.60	89.80	4,946.40	-82.52	4,272.66	4,273.45	2.63	-0.64	-2.55
9,273.00	90.00	89.20	4,946.73	-81.71	4,366.65	4,366.42	0.78	0.43	-0.65
9,367.00	89.80	89.30	4,948.89	-80.48	4,459.64	4,460.37	0.24	-0.21	0.11
9,461.00	89.40	90.00	4,947.55	-79.90	4,553.64	4,554.34	0.86	-0.43	0.74
9,556.00	89.10	90.60	4,948.79	-80.40	4,648.63	4,649.32	0.71	-0.32	0.63
9,650.00	89.70	91.00	4,949.78	-81.71	4,742.62	4,743.32	0.77	0.64	0.43
9,744.00	89.20	91.40	4,950.68	-83.68	4,836.59	4,837.31	0.68	-0.53	0.43
9,839.00	89.50	91.20	4,951.76	-85.84	4,931.56	4,932.31	0.38	0.32	-0.21



TDS
Survey Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Site: McIntyre DK Federal Corn #28H
Well: SHL: 465' FSL, 285' FWL, Sec 17, T17S, R30E, Unit M
Wellbore: BHL: 350' FSL, 590' FWL, Sec 18, T17S, R30E, Unit M
Design: BHL: 350' FSL, 590' FWL, Sec 16, T17S, R30E, Unit M

Local Co-ordinate Reference: Well SHL, 465' FSL, 285' FWL, Sec 17, T17S, R30E, Unit M
TVD Reference: KB @ 3664.00usft (Patriot 8)
MD Reference: KB @ 3664.00usft (Patriot 8)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
9,934.00	90.50	91.00	4,951.76	-87.66	5,026.54	5,027.30	1.07	1.05	-0.21
10,028.00	90.20	91.50	4,951.18	-89.71	5,120.52	5,121.30	0.62	-0.32	0.53
10,123.00	90.50	90.60	4,950.60	-91.45	5,215.50	5,216.30	1.00	0.32	-0.95
10,218.00	89.80	90.50	4,950.35	-92.36	5,310.49	5,311.29	0.74	-0.74	-0.11
10,313.00	88.80	90.10	4,951.51	-92.86	5,405.48	5,406.28	1.13	-1.05	-0.42
10,422.00	88.00	90.10	4,954.56	-93.05	5,514.44	5,515.22	0.73	-0.73	0.00
Last TDS MWD Survey									
10,492.00	88.00	90.10	4,957.00	-93.17	5,584.40	5,585.17	0.00	0.00	0.00
Projection to BH/TD									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,030.00	1,029.69	-0.13	20.59	Tie-In to VES Gyro Survey
1,138.00	1,137.56	-0.18	25.77	First TDS MWD Survey
10,422.00	4,954.56	-93.05	5,514.44	Last TDS MWD Survey
10,492.00	4,957.00	-93.17	5,584.40	Projection to BH/TD

Checked By: _____ Approved By: _____ Date: _____

April 6, 2017

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

Attn: Kanicia Castillo

RE: McIntyre DK Federal Com No. 028H

Please find enclosed a copy of the survey from 0' to 1030' ran on the above referenced well.

Sincerely,

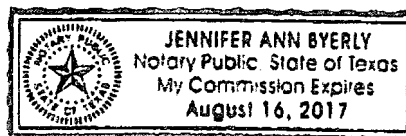
Keith Havelka
Operations

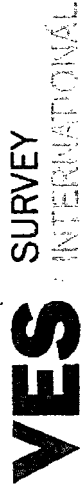
STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 6th day of April,
A.D., 2017, by Keith Havelka.


Jennifer Ann Byerly
Notary Public, State of Texas

VES Survey International
P.O. Box 261021, Corpus Christi, Texas 78426
T (361) 767-0602 F (361) 767-0612





Company: COG OPERATING
Lease/Well: MCINTYRE DK FEDERAL COM No. 028H

Rig Name: PATRIOT 6
State/County: NEW MEXICO/EDDY
VS-Azi: 0.00 Degrees
Latitude: 32.82845, Longitude: -104.00131
Grid North = True North -0.18 degs (NAD 27)
Grid Correction Applied = -0.18 degs

Depth Reference : RKB 18 FEET

DRILLOG HA GYRO SURVEY CALCULATIONS

Filename: elln-de_01.ut
Minimum Curvature Method
Report Date/Time: 4/6/2017 / 10:42

VES Survey International
West Texas
432-563-5444

Surveyor: Dustin Byers

McIntyre DK Federal Com No. 028H / API 30-015-41273

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	0.14	141.00	100.00	-0.09	0.08	-0.09	0.12	141.00	0.14
200.00	0.23	157.35	200.00	-0.37	0.23	-0.37	0.43	148.36	0.10
300.00	0.37	92.98	300.00	-0.57	0.63	-0.57	0.85	132.07	0.34
400.00	0.91	88.80	399.99	-0.31	1.70	-0.31	1.73	100.32	0.59
500.00	1.24	86.65	499.97	0.03	3.53	0.03	3.53	89.54	0.45
600.00	1.51	94.75	599.95	-0.02	5.93	-0.02	5.93	90.17	0.33
700.00	1.68	93.50	699.91	-0.22	8.70	-0.22	8.70	91.42	0.18
800.00	1.82	88.10	799.86	-0.25	11.76	-0.25	11.75	91.23	0.21
900.00	2.24	89.85	899.80	-0.19	15.28	-0.19	15.29	90.73	0.42
1000.00	2.38	89.02	999.72	-0.15	19.31	-0.15	19.31	90.46	0.15
1030.00	2.50	87.47	1029.69	-0.12	20.59	-0.12	20.59	90.32	0.46



VES Survey International
West Texas
432-563-5444

Surveyor: Dustin Byers
McIntyre DK Federal Com No. 028H / API 30-015-41273



SURVEY
INTERNATIONAL

20

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0.0
+Z

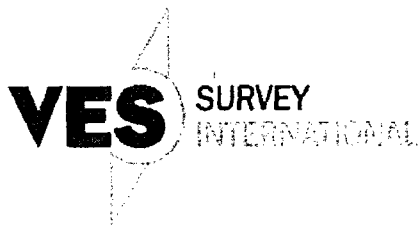
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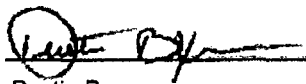
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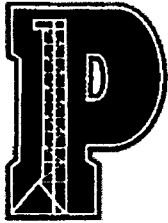
VES Survey Date: 3/30/2017

40



I Dustin Byers certify that I am employed by VES Survey International. That I did on the day(s) of 03/30/17 through 03/30/17 conduct or supervise the taking of a Rate Gyro survey from a depth of 0.00 feet to a depth of 1,030.00 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 Operating for the McIntyre DK Fed Well # 28H API # 30-015-41273 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.


Dustin Byers
Service Technician
VES Survey International



OPERATOR
WELL/LEASE
COUNTY.

COG Operating, LLC
McIntyre DK Federal Com #28H
Eddy County New Mexico
Sec. 17, T17S, R30E

PATRIOT DRILLING, LLC

**STATE OF NEW MEXICO
DEVIATION REPORT**

<u>Depth</u>	<u>Deviation</u>	<u>Depth</u>	<u>Deviation</u>
232	1/2	1,081	1 3/4
519	1 1/4	1,295	2

Patriot Drilling, LLC

M. Leroy Peterson, Executive Vice-
President

The foregoing instrument was acknowledged before me on this 13th day of April, 2017 by M. Leroy Peterson, Executive Vice-President of Patriot Drilling, LLC.

My Commission Expires: 02/01/2019



Lori T. Rowan
Notary Public for Ector Co., Texas