

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NM OIL CONSERVATION

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. NMLC029415B
2. Name of Operator COG OPERATING LLC		6. If Indian, Allottee or Tribe Name
3a. Address 600 W ILLINOIS AVENUE MIDLAND, TX 79701		7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 432.685.4384		8. Well Name and No. PUCKETT 12 FEDERAL 27H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 12 T17S R31E NENE 249FNL 615FEL 32.855650 N Lat, 103.816020 W Lon		9. API Well No. 30-015-41444-00-X1
		10. Field and Pool, or Exploratory FREN
		11. County or Parish, and State EDDY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original APD
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

COG Operating LLC respectfully requests permission to change the completion interval, KOP, TVD and production string tail cement of this well as follows:

FROM: 5402' TVD; 9969' MD - EOC:5475' TVD
TO: 6077' TVD; 10644' MD - EOC:6150' TVD

Original COAS still stand.

A revised directional plan is attached.

PLEASE SEE ATTACHMENT FOR DETAILS

well path crosses the Puckett 12 Federal 7H TVD @ 6,412'. Operator to ensure that is enough space between the two wells, as 1/20/16

Accepted for record
KMDCB

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #293438 verified by the BLM Well Information System
For COG OPERATING LLC, sent to the Carlsbad
Committed to AFMSS for processing by JAMIE RHOADES on 09/16/2015 (15JLR0426SE)

Name (Printed/Typed) KELLY J HOLLY	Title PERMITTING TECH
Signature (Electronic Submission)	Date 03/02/2015

APPROVED

JAN 8 2016

BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

Approved By _____ Title _____ Date _____
Office _____

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.

Puckett 12 Federal #27H Sundry

COG Operating LLC requests permission to change the completion interval, KOP, Target TVD, and production casing design and production casing cement. Details are as follows:

Old Target formation- Paddock

Old KOP 4954'

Old Target TVD 5475'

Old Production casing details:

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Jt.	Brst/clps/ten
8 3/4"	0-4954'	7" 0-4954'	26#	J/K55	New	LT&C	1.47/2.29/4.64
8 3/4"	4954-5781'	5 1/2" 4954-5781'	17#	L80	New	LT&C	1.42/2.41/4.24
7 7/8"	5781'-9969'	5 1/2" 5781'-9969'	17#	L80	New	LT&C	1.42/2.41/4.24

Old Production casing cement details:

Hole Size	Interval MD	OD Casing	Sacks	Yield Cf/sk	Weight ppg	Mixing Wtr gps	Cement Recipe	500 psi Compressive hours
8 3/4"	0-3400'	7"	500	2.01	12.5	11.4	35:65:6 C Poz Gel w/additives	25
8 3/4"	3400'-5300'	5 1/2"	400	1.37	14.0	6.4	50:50:2 C Poz Gel w/additives	30
7 7/8"	5300'-9969'	5 1/2"	310	2.62	15.0	11	Solucem-H w/additives	25

[Handwritten scribble]

New Target formation- Upper Blinbry

New KOP 5629'

New Target TVD 6150'

New Production casing details:

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Jt.	Brst/clps/ten
8 3/4"	0- 5629'	7"	29#	L80	New	LT&C	1.33/3.24/2.36
8 3/4"	5629'- 6456'	5 1/2"	17#	L80	New	LT&C	1.26/2.61/3.96
7 7/8"	6456'- 10644'	5 1/2"	17#	L80	New	LT&C	1.26/2.61/8.24

New Production casing cement details:

Hole Size	Interval MD	OD Casing	Sacks	Yield Cf/sk	Weight ppg	Mixing Wtr gps	Cement Recipe	500 psi Compressive hours
8 3/4"	0-5629'	7"	575	2.01	12.5	11.4	35:65:6 C Poz Gel w/additives	25
8 3/4"	5629- 6456'	5 1/2"	200	1.37	14.0	6.4	50:50:2 C Poz Gel w/additives	12
7 7/8"	6456'- 10644'	5 1/2"	725	1.37	14.0	6.4	50:50:2 C Poz Gel w/ additives	12

operator still has DV tool option from original APD.



COG Operating LLC

Well: Puckett 12 Federal Well No. 27H
 Site: Puckett 12 Federal
 Project: Eddy County, New Mexico
 Design: rev0
 Rig: United #43

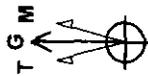
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5629.21	0.00	0.00	5629.21	0.00	0.00	0.00	0.00	0.00	KOP Begin 11'100' build
3	6456.47	91.00	184.23	6150.00	-528.51	-39.10	11.00	184.23	529.95	Begin 91.00 lateral section
4	10643.91	91.00	184.23	6077.00	-4703.90	-348.00	0.00	0.00	4716.76	PBHLJTD

Surface Location: RKB=4009+12 @ 4021.00usft (United #43)
 US State Plane 1927 (Exact solution)
 New Mexico East: 3001

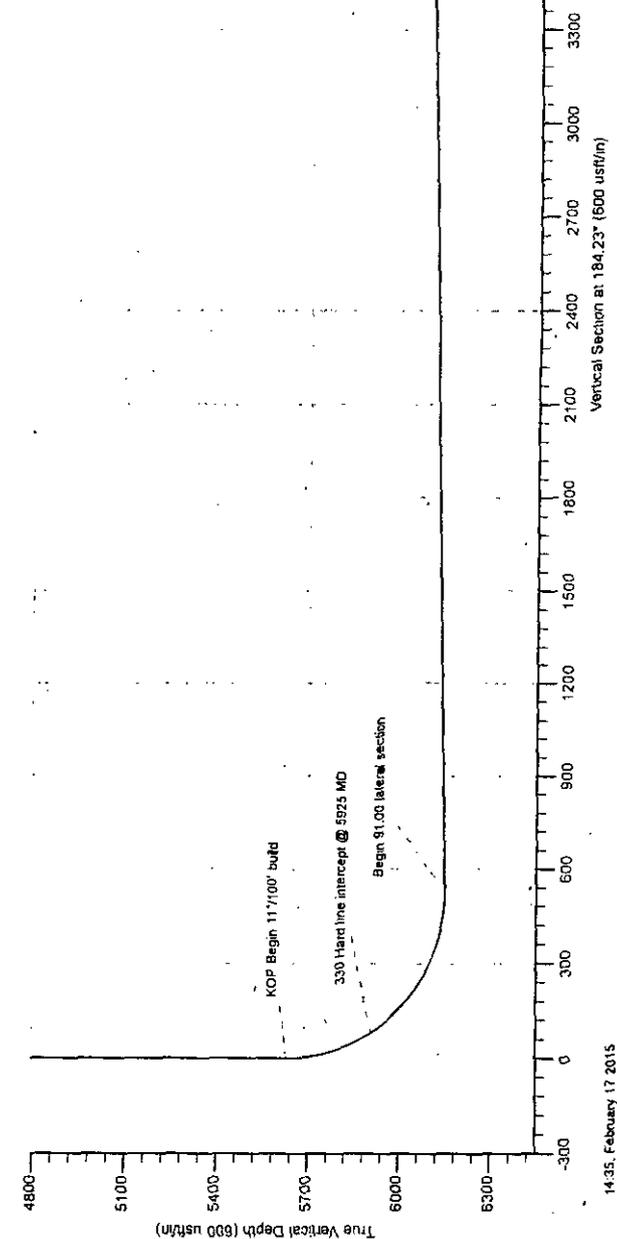
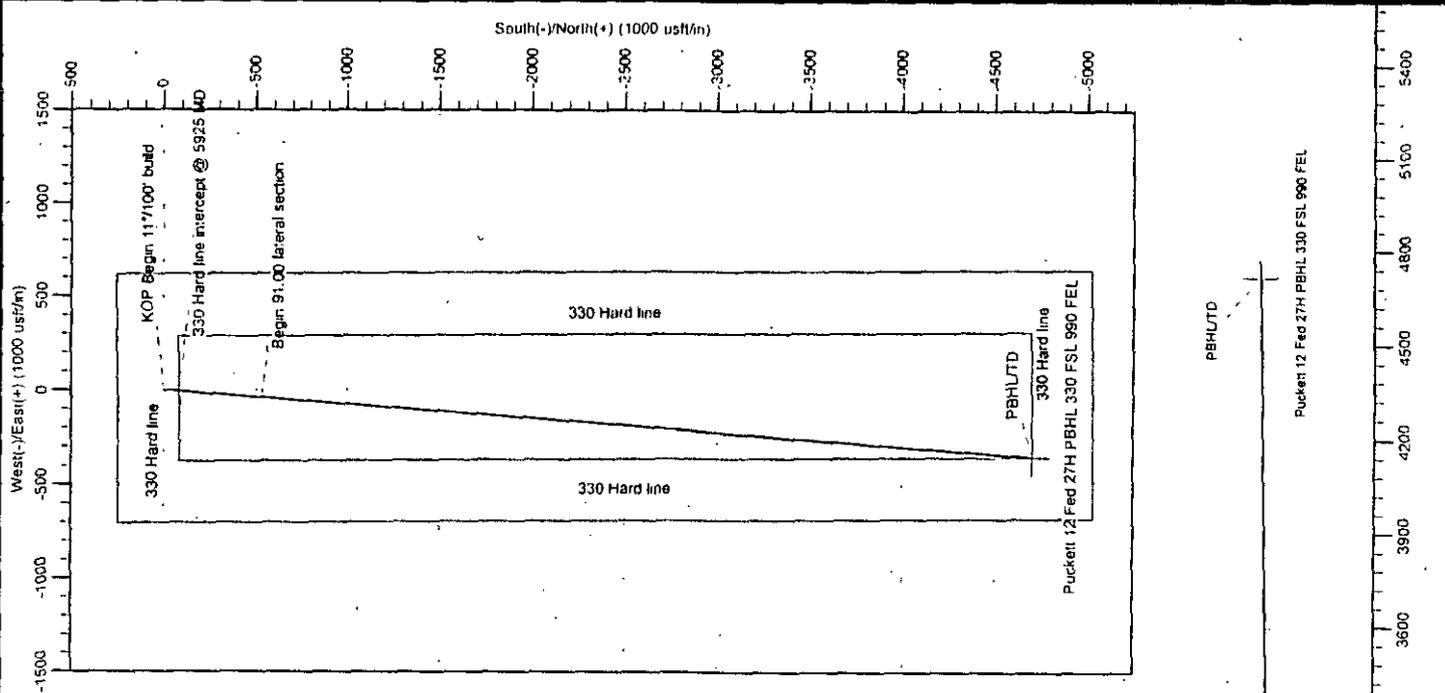
Northing: 675387.40
 Easting: 658859.70
 Latitude: 32.85565433
 Longitude: -103.81601526

Total Correction (M => G) To convert a Magnetic Direction to a Grid Direction: Add 7.01°



Azimuths to Grid North
 True North: -0.28°
 Magnetic North: 7.01°
 Magnetic Field
 Strength: 46557.6nT
 Dip Angle: 60.64°
 Date: 2/13/2015
 Model: IGRF2010

PRO DIRECTIONAL





NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 19 2016

RECEIVED

COG Operating LLC

Eddy County, New Mexico

Puckett 12 Federal

Puckett 12 Federal Well No. 27H

Original Hole

SHL: 249 FNL 615 FEL Sect 12-T17S-R31E Unit A

POE: 330 FNL 621 FEL Sect 12-T17S-R31E Unit A

BHL: 330 FSL 990 FEL Sect 12-T17S-R31E Unit P

Plan: rev0

Standard_report

17 February, 2015



Standard_report

Company: COG Operating LLC Eddy County, New Mexico Project: Puckett 12 Federal Site: Puckett 12 Federal Well No. 27H Well: Original Hole Design: rev0	Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Database:	Well Puckett 12 Federal Well No. 27H RKB=4009+12 @ 4021.00usft (Unified #43) RKB=4009+12 @ 4021.00usft (Unified #43) Grid Minimum Curvature Dbase Nov0914
--	---	--

Project: Eddy County, New Mexico

Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001

System Datum: Mean Sea Level

Site: Puckett 12 Federal

Site Position: Map

From: 0.00 usft

Position Uncertainty: 0.00 usft

Slot Radius: 13-3/16 "

Latitude: 32.85576198
Longitude: -103.81545169
Grid Convergence: 0.28 "

Well: Puckett 12 Federal Well No. 27H, Surf Loc: 249 FNL 615 FEL Sect 12-T17S-R31E Unit A

Well Position: +N-S 0.00 usft
 +E-W 0.00 usft

Position Uncertainty: 0.00 usft

Wellhead Elevation: usft

Northing: 675,387.40 usft
Easting: 658,859.70 usft

Latitude: 32.85565433
Longitude: -103.81601525
Ground Level: 4,009.00 usft

Wellbore: Original Hole

Magnetics: Model Name: IGRF2010 Sample Date: 2/13/2015
 Dip Angle: 60.64 Declination: 7.29 Field Strength: 48.598 (nT)

Design: rev0

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section: Depth From (TVD) (usft) +N/S (usft) +E/W (usft) Direction (°)
 0.00 0.00 0.00 184.23

Survey Tool Program: Date: 2/17/2015

From (usft): 0.00
To (usft): 10.643.89 rev0 (Original Hole)
Survey (Wellbore): Survey (Wellbore)
Tool Name: MWD
Description: MWD - Standard



Standard_report

Company: COG Operating LLC
 Project: Eddy County, New Mexico
 Site: Puckett 12 Federal
 Well: Puckett 12 Federal Well No. 27H
 Wellbore: Original Hole
 Design: rev0

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well Puckett 12 Federal Well No. 27H
 RKB=4009+12 @ 4021.00ust (United #43)
 RKB=4009+12 @ 4021.00ust (United #43)
 Grid
 Minimum Curvature
 Dbase Nov0914

Planned Survey

MD (usft)	Inc (")	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70



Standard_report

Company: COG Operating LLC
 Project: Eddy County, New Mexico
 Site: Puckett 12 Federal
 Well: Puckett 12 Federal Well No. 27H
 Wellbore: Original Hole
 Design: rev0

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well Puckett 12 Federal Well No. 27H
 RKB=4009+12 @ 4021.00usft (United #43)
 RKB=4009+12 @ 4021.00usft (United #43)
 Grid
 Minimum Curvature
 Dbase Nov0914

MD (usft)	Inc (")	Azi (azimuth)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70



Standard_report

Company: COG Operating LLC
Project: Eddy County, New Mexico
Site: Puckett 12 Federal
Well: Puckett 12 Federal Well No. 27H
Wellbore: Original Hole
Design: rev0

Local Co-ordinate Reference:
TVD Reference: Well Puckett 12 Federal Well No. 27H
MD Reference: RKB=4009+12 @ 4021.00usft (United #43)
North Reference: RKB=4009+12 @ 4021.00usft (United #43)
Survey Calculation Method: Grid
Database: Minimum Curvature
 Dbase Nov0914

MD (usft)	Inc (")	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	675,387.40	658,859.70
5,629.21	0.00	0.00	5,629.21	0.00	0.00	0.00	0.00	675,387.40	658,859.70
KOP Begin 11°100' build									
5,700.00	7.79	184.23	5,699.78	-4.79	-0.35	11.00	4.80	675,382.61	658,859.35
5,800.00	18.79	184.23	5,796.96	-27.67	-2.05	11.00	27.75	675,359.73	658,857.65
5,900.00	29.79	184.23	5,887.97	-68.63	-5.08	11.00	68.82	675,318.77	658,854.62
5,925.00	32.54	184.23	5,909.36	-81.53	-6.03	11.00	81.75	675,305.87	658,853.67
330 Hard line intercept @ 5925 MD									
6,000.00	40.79	184.23	5,969.47	-126.15	-9.33	11.00	126.50	675,261.25	658,850.37
6,100.00	51.79	184.23	6,036.47	-198.12	-14.66	11.00	198.67	675,189.28	658,845.04
6,200.00	62.79	184.23	6,092.43	-281.91	-20.86	11.00	282.68	675,105.49	658,838.84
6,300.00	73.79	184.23	6,129.37	-374.41	-27.70	11.00	375.44	675,012.99	658,832.00
6,400.00	84.79	184.23	6,147.93	-472.25	-34.94	11.00	473.54	674,915.15	658,824.76
6,456.47	91.00	184.23	6,150.00	-528.51	-39.10	11.00	529.95	674,858.89	658,820.60
Begin 91.00 lateral section									
6,500.00	91.00	184.23	6,149.24	-571.91	-42.31	0.00	573.47	674,815.49	658,817.39
6,600.00	91.00	184.23	6,147.50	-671.62	-49.69	0.00	673.46	674,715.78	658,810.01
6,700.00	91.00	184.23	6,145.76	-771.33	-57.06	0.00	773.44	674,616.07	658,802.64
6,800.00	91.00	184.23	6,144.01	-871.05	-64.44	0.00	873.43	674,516.35	658,795.26
6,900.00	91.00	184.23	6,142.27	-970.76	-71.82	0.00	973.41	674,416.64	658,787.88
7,000.00	91.00	184.23	6,140.53	-1,070.47	-79.19	0.00	1,073.40	674,316.93	658,780.51
7,100.00	91.00	184.23	6,138.78	-1,170.18	-86.57	0.00	1,173.38	674,217.22	658,773.13
7,200.00	91.00	184.23	6,137.04	-1,269.89	-93.95	0.00	1,273.37	674,117.51	658,765.75
7,300.00	91.00	184.23	6,135.30	-1,369.61	-101.33	0.00	1,373.35	674,017.79	658,758.37
7,400.00	91.00	184.23	6,133.55	-1,469.32	-108.70	0.00	1,473.34	673,918.08	658,751.00



Standard_report

Company: COG Operating LLC
 Project: Eddy County, New Mexico
 Site: Puckett 12 Federal
 Well: Puckett 12 Federal Well No. 27H
 Wellbore: Original Hole
 Design: rev0

Local Co-ordinate Reference:
 TVD Reference:
 MD Reference:
 North Reference:
 Survey Calculation Method:
 Database:

Well Puckett 12 Federal Well No. 27H
 RKB=4009+12 @ 4021.00usft (United #43)
 RKB=4009+12 @ 4021.00usft (United #43)
 Gnd
 Minimum Curvature
 Dbase Nov0914

Planned Survey	MD (usft)	Inc. (°)	Azi (azimuth)	TVD (usft)	NIS (usft)	E/W (usft)	D/Leg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
	7,500.00	91.00	184.23	6,131.81	-1,569.03	-116.08	0.00	1,573.32	673,818.37	658,743.62
	7,600.00	91.00	184.23	6,130.07	-1,668.74	-123.46	0.00	1,673.30	673,718.66	658,736.24
	7,700.00	91.00	184.23	6,128.32	-1,768.46	-130.83	0.00	1,773.29	673,618.94	658,728.87
	7,800.00	91.00	184.23	6,126.58	-1,868.17	-138.21	0.00	1,873.27	673,519.23	658,721.49
	7,900.00	91.00	184.23	6,124.84	-1,967.88	-145.59	0.00	1,973.26	673,419.52	658,714.11
	8,000.00	91.00	184.23	6,123.09	-2,067.59	-152.96	0.00	2,073.24	673,319.81	658,706.74
	8,100.00	91.00	184.23	6,121.35	-2,167.31	-160.34	0.00	2,173.23	673,220.09	658,699.36
	8,200.00	91.00	184.23	6,119.61	-2,267.02	-167.72	0.00	2,273.21	673,120.38	658,691.98
	8,300.00	91.00	184.23	6,117.86	-2,366.73	-175.09	0.00	2,373.20	673,020.67	658,684.61
	8,400.00	91.00	184.23	6,116.12	-2,466.44	-182.47	0.00	2,473.18	672,920.96	658,677.23
	8,500.00	91.00	184.23	6,114.38	-2,566.15	-189.85	0.00	2,573.17	672,821.25	658,669.85
	8,600.00	91.00	184.23	6,112.63	-2,665.87	-197.22	0.00	2,673.15	672,721.53	658,662.48
	8,700.00	91.00	184.23	6,110.89	-2,765.58	-204.60	0.00	2,773.14	672,621.82	658,655.10
	8,800.00	91.00	184.23	6,109.15	-2,865.29	-211.96	0.00	2,873.12	672,522.11	658,647.72
	8,900.00	91.00	184.23	6,107.40	-2,965.00	-219.35	0.00	2,973.11	672,422.40	658,640.35
	9,000.00	91.00	184.23	6,105.66	-3,064.72	-226.73	0.00	3,073.09	672,322.68	658,632.97
	9,100.00	91.00	184.23	6,103.92	-3,164.43	-234.11	0.00	3,173.08	672,222.97	658,625.59
	9,200.00	91.00	184.23	6,102.17	-3,264.14	-241.48	0.00	3,273.06	672,123.26	658,618.22
	9,300.00	91.00	184.23	6,100.43	-3,363.85	-248.86	0.00	3,373.05	672,023.55	658,610.84
	9,400.00	91.00	184.23	6,098.69	-3,463.57	-256.24	0.00	3,473.03	671,923.83	658,603.46
	9,500.00	91.00	184.23	6,096.94	-3,563.28	-263.62	0.00	3,573.02	671,824.12	658,596.08
	9,600.00	91.00	184.23	6,095.20	-3,662.99	-270.99	0.00	3,673.00	671,724.41	658,588.71
	9,700.00	91.00	184.23	6,093.46	-3,762.70	-278.37	0.00	3,772.99	671,624.70	658,581.33
	9,800.00	91.00	184.23	6,091.71	-3,862.41	-285.75	0.00	3,872.97	671,524.99	658,573.95
	9,900.00	91.00	184.23	6,089.97	-3,962.13	-293.12	0.00	3,972.96	671,425.27	658,566.58
	10,000.00	91.00	184.23	6,088.23	-4,061.84	-300.50	0.00	4,072.94	671,325.56	658,559.20
	10,100.00	91.00	184.23	6,086.48	-4,161.55	-307.88	0.00	4,172.92	671,225.85	658,551.82



Standard_report

Company: COG Operating LLC Project: Eddy County, New Mexico Site: Puckett 12 Federal Well: Puckett 12 Federal Well No. 27H Wellbore: Original Hole Design: rev0	Local Co-ordinate Reference: TVD Reference: Well Puckett 12 Federal Well No. 27H MD Reference: RKB=4009+12 @ 4021.00usft (United #43) North Reference: RKB=4009+12 @ 4021.00usft (United #43) Survey Calculation Method: Grid Database: Minimum Curvature Dbase Nov0914
--	---

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	D Leg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
10,200.00	91.00	184.23	5,084.74	-4,261.26	-315.25	0.00	4,272.91	671,126.14	658,544.45
10,300.00	91.00	184.23	5,083.00	-4,360.98	-322.63	0.00	4,372.89	671,026.42	658,537.07
10,400.00	91.00	184.23	5,081.25	-4,460.69	-330.01	0.00	4,472.88	670,926.71	658,529.69
10,500.00	91.00	184.23	5,079.51	-4,560.40	-337.38	0.00	4,572.86	670,827.00	658,522.32
10,600.00	91.00	184.23	5,077.77	-4,660.11	-344.76	0.00	4,672.85	670,727.29	658,514.94
10,643.91	91.00	184.23	5,077.00	-4,703.90	-348.00	0.00	4,716.76	670,683.50	658,511.70

PBHLTD

Plan Annotations	Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comments
			+N/S (usft)	+E/W (usft)	
	5,629.21	5,629.21	0.00	0.00	KOP Begin 11'100' build
	5,925.00	5,909.36	-81.53	-6.03	330 Hard line intercept @ 5925 MD
	6,456.47	6,150.00	-528.51	-39.10	Begin 91.00 lateral section
	10,643.91	6,077.00	-4,703.90	-348.00	PBHLTD