

Submit 1 Copy To Appropriate District Office

District I - (575) 393-6161
1625 N. French Dr., Hobbs, NM 88240
District II - (575) 748-1283
811 S. First St., Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Rd., Aztec, NM 87410
District IV - (505) 476-3460
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103
Revised August 1, 2011

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. 30-015-42643
1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐		5. Indicate Type of Lease STATE ☒ FEE ☐
2. Name of Operator COG Operating LLC		6. State Oil & Gas Lease No.
3. Address of Operator One Concho Center - 600 W Illinois Ave Midland, TX 79701		7. Lease Name or Unit Agreement Name Pilum 15 Fee
4. Well Location Unit Letter I : 2485 feet from the SOUTH line and 425 feet from the EAST line Section 16 Township 18S Range 26E NMPM County EDDY		8. Well Number 1H
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3352'		9. OGRID Number 229137
		10. Pool name or Wildcat Atoka; Glorieta Yeso 3250

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
DOWNHOLE COMMINGLE ☐

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐

OTHER: **Change BHL** ☒

OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

COG Operating LLC respectfully requests permission to change the BHL of this well as follows:

FROM:

SHL: 2485' FSL & 425' FEL, Unit I, Sec 16, T18S, R26E
BHL: 2322' FSL & 330' FEL, Unit I, Sec 15, T18S, R26E

NM OIL CONSERVATION

ARTESIA DISTRICT

MAR 31 2015

TO:

SHL: 2485' FSL & 425' FEL, Unit I, Sec 16, T18S, R26E
BHL: 2310' FSL & 330' FEL, Unit I, Sec 15, T18S, R26E

RECEIVED

A revised C-102 and directional plan are attached for your review.

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE

TITLE **Permitting Tech**

DATE **03/30/2015**

Type or print name **Kelly J. Holly**

E-mail address: **kholly@concho.com**

PHONE: **432-685-4384**

For State Use Only

APPROVED BY:

TITLE **District Supervisor**

DATE **4/7/15**

Conditions of Approval (if any):

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-4720
District II
811 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-9720
District III
1000 Rio Bravos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

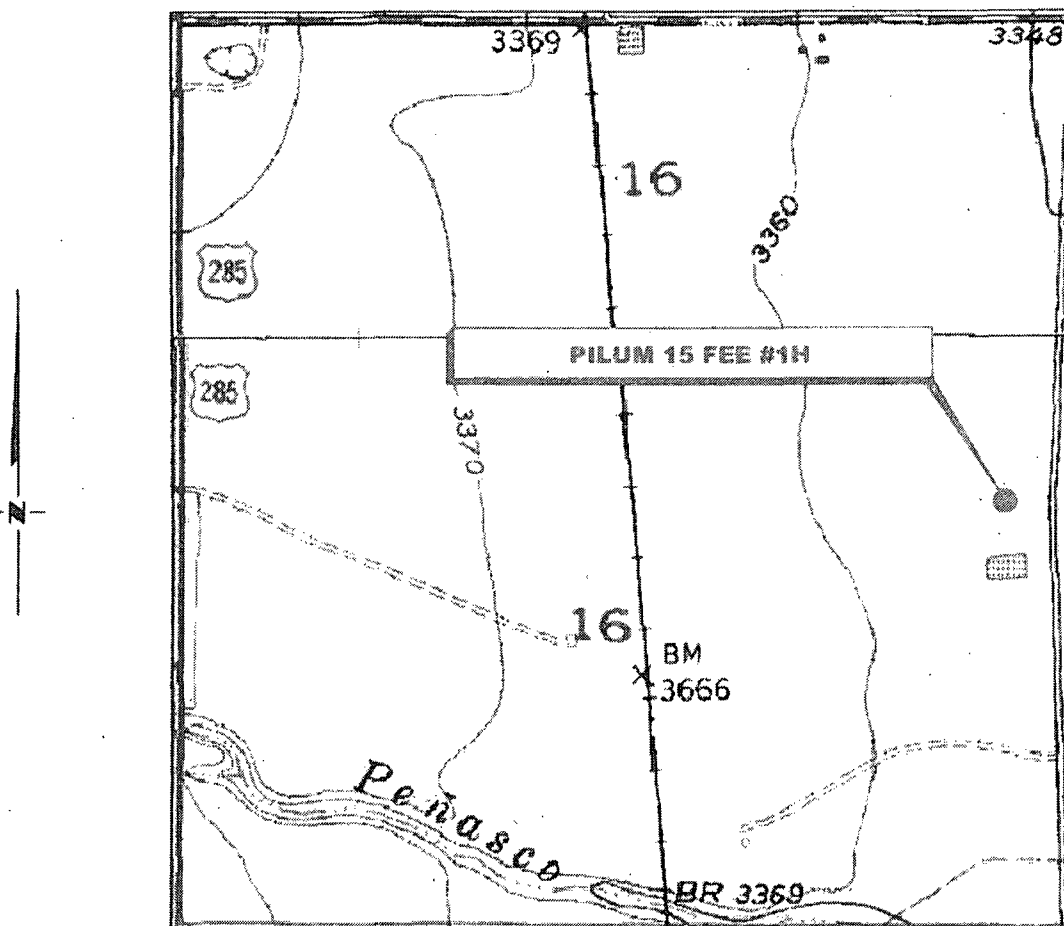
1 API Number 30-015-42643		2 Pool Code 3250		3 Pool Name Atoka; Glorieta Yeso					
4 Property Code 313706		5 Property Name PILUM 15 FEE						6 Well Number 1H	
7 OGRID NO. 229137		8 Operator Name COG OPERATING, LLC						9 Elevation 3352'	
10 Surface Location									
UL or lot no. I	Section 16	Township 18S	Range 26E	1st Idn	Feet from the 2485	North-South line SOUTH	Feet from the 425	East/West line EAST	County EDDY
11 Bottom Hole Location If Different From Surface									
UL or lot no. I	Section 15	Township 18S	Range 26E	1st Idn	Feet from the 2310	North-South line SOUTH	Feet from the 330	East/West line EAST	County EDDY
12 Dedicated Acres 160		13 Joint or Infill		14 Consolidation Code		15 Order No.			

No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.

		10 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or undivided 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature: <i>Kelly J. Holly</i> Date: 3-30-15 Printed Name: Kelly J. Holly E-mail Address: kholly@concho.com	
CORNER DATA NAD 27 GRID - NM EAST A: FOUND COTTON SPINDLE N: 633133.5 - E: 480997.7 B: CALCULATED CORNER N: 635775.9 - E: 481013.2 C: FOUND COTTON SPINDLE N: 638418.3 - E: 481028.7 D: CALCULATED CORNER N: 638424.6 - E: 483677.7 E: FOUND COTTON SPINDLE N: 638430.8 - E: 486326.6 F: FOUND 5/8" REBAR N: 638414.7 - E: 488971.0 G: CALCULATED CORNER N: 639425.9 - E: 491615.4 H: CALCULATED CORNER N: 635773.4 - E: 491605.6		GEOGETIC DATA NAD 27 GRID - NM EAST SURFACE LOCATION N: 635620.1 E: 485901.6 LAT: 32.74740549° N LONG: 104.37918856° W BOTTOM HOLE N: 635431.9 E: 491274.3	
11 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. 8-12-14 Date of Survey Signature and Seal of Professional Surveyor: <i>Robert M. Howett</i> 19680 Certificate Number			

RRC - Firm No.: TX 10193838 NM 4655451 - Job No.: LS140319

LOCATION VERIFICATION MAP



SECTION 16, TWP. 18 SOUTH, RGE. 26 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: COG Operating, LLC

LEASE: Pilum 15 Fee

WELL NO.: 1H

ELEVATION: 3352'

LOCATION: 2485' FSL & 425' FEL

CONTOUR INTERVAL: 10'

USGS TOPO. SOURCE MAP:

Dayton, N. M. (1955)

Firm No.: TX 10193838 NM 4655451

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NO.	REVISION	DATE
JOB NO.: LS140319		
DWG. NO.: 140319LVM		

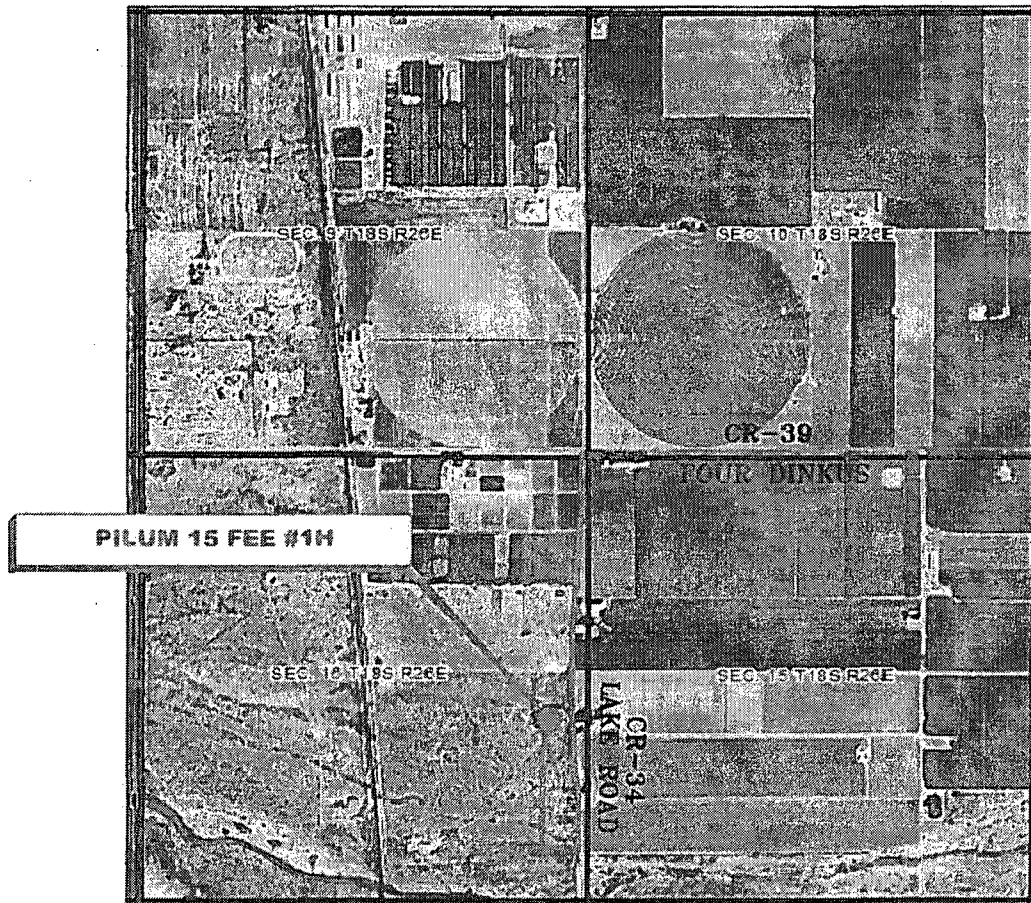
RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 8-12-14
SURVEYED BY: GB/IE
DRAWN BY: ARJ
APPROVED BY: RMH
SHEET : 1 OF 1

VICINITY MAP

NOT TO SCALE



SECTION 16, TWP. 18 SOUTH, RGE. 26 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO

OPERATOR: COG Operating, LLC
LEASE: Pilum 15 Fee
WELL NO.: 1H

LOCATION: 2485' FSL & 425' FEL
ELEVATION: 3352'

Firm No.: TX 10193838 NM #655451

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RRC 308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200			SCALE: N.T.S.
			DATE: 8-12-14
			SURVEYED BY: GB/IE
			DRAWN BY: ARJ
NO.	REVISION	DATE	APPROVED BY: RMH
JOB NO.: LS140319			SHEET : 1 OF 1
DWG. NO.: 140319VM			

PILUM 15 FEE #1H
(2485' FSL & 425' FEL)
SECTION 16, T18S, R26E,
N. M. P. M., EDDY CO., NEW MEXICO



From the intersection of CR-39 (Four Dinkus) and CR-34 (Lake Road);
Go Southwest on CR-34 (Lake Road) approx. 0.5 miles;
Location is approx. 283 feet West of CR-34 (Lake Road).

SCALE: 1" = 100'

A horizontal graphic scale bar with a black and white hatched pattern. It is marked with '0' at the left end, '50' in the middle, and '100' at the right end.

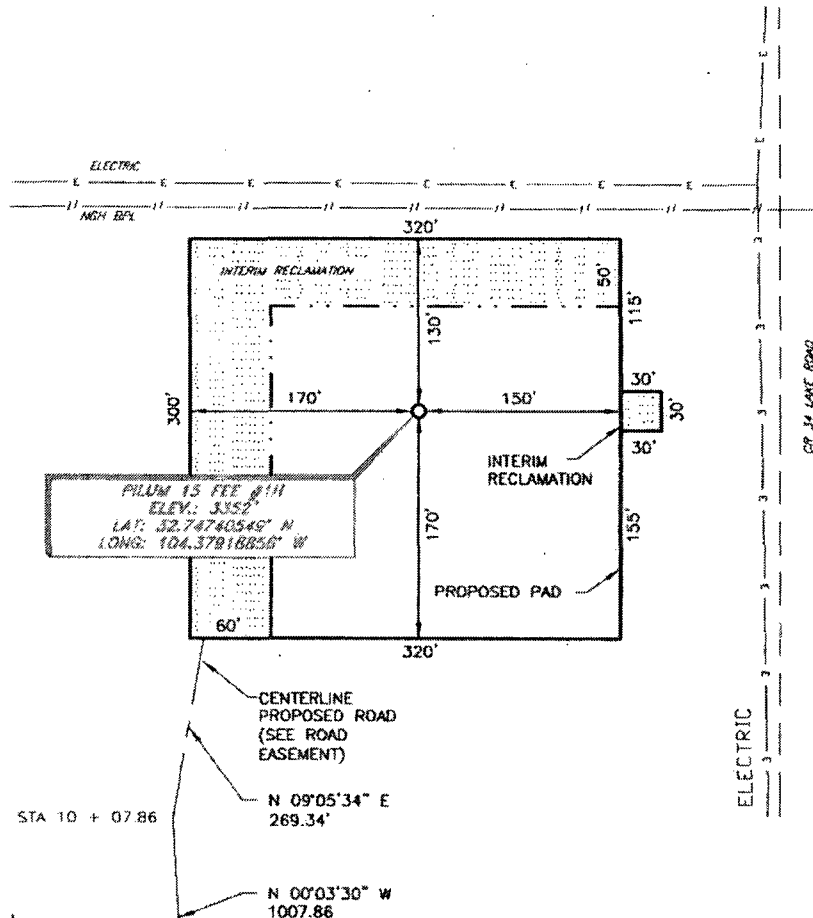
BEARINGS ARE
AND 27 GRID - NW EAST
DISTANCES ARE
GROUND.

Firm No: TX 7019.18.18 NAI 4555451

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<table border="1"> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr> <th>NO.</th> <th>REVISION</th> <th>DATE</th> </tr> <tr> <td colspan="3">JOB NO.: LS140319</td> </tr> <tr> <td colspan="3">DWG. NO.: 140319PAD</td> </tr> </table> RRC 308 W. BROADWAY ST., HOBBES, NM 88240 (575) 964-8200 SCALE: 1" = 100' DATE: 8-12-14 SURVEYED BY: GB/IE DRAWN BY: ARJ APPROVED BY: RMH SHEET : 1 OF 1												NO.	REVISION	DATE	JOB NO.: LS140319			DWG. NO.: 140319PAD		
NO.	REVISION	DATE																		
JOB NO.: LS140319																				
DWG. NO.: 140319PAD																				

COG OPERATING, LLC
 INTERIM RECLAMATION
 PILUM 15 FEE #1H
 (2485' FSL & 425' FEL)
 SECTION 18, T18S, R26E,
 N. M. P. M., EDDY CO., NEW MEXICO



DIRECTIONS TO LOCATION

From the intersection of CR-39 (Four Dinkus) and CR-34 (Lake Road);
 Go Southwest on CR-34 (Lake Road) approx. 0.5 miles;
 Location is approx. 283 feet West of CR-34 (Lake Road).

SCALE: 1" = 100'
 0 50 100
 BEARINGS ARE
 MAGNETIC
 AND 27 GRID - AN EAST
 DISTANCES ARE
 GRIDLAND.

Firm No.: TX 1019JB38 NM 4655457

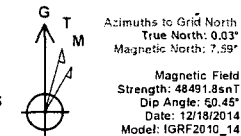
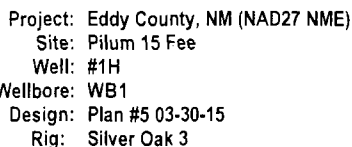
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NO.	REVISION	DATE
JOB NO.: LS140319		
DWG. NO.: 140319REC		

RRC

368 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 100'
 DATE: 8-12-14
 SURVEYED BY: GB/IE
 DRAWN BY: ARJ
 APPROVED BY: RMH
 SHEET : 1 OF 1



WELL DETAILS					
			Ground Level:	3352.00	
N-S	E-W	Nothing	Easting	Latitude	Longitude
0.00	0.00	635620.10	485901.60	32° 44' 50.85970 N	104° 22' 45.07921 W

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Annotation
2	2240.00	0.00	0.00	2240.00	0.00	0.00	0.00	0.00	0.00	KOP: Start 11"/100' Build
3	3062.73	90.50	103.49	2780.85	-122.57	516.92	1.00	103.49	514.90	LP: Begin 37"/100' Turn
4	3162.73	90.50	103.48	2759.89	-145.89	801.15	0.00	0.00	612.89	Hold 90.5" Inc. 103.48' Azm
5	3616.97	90.50	99.85	2755.99	-198.58	1058.24	3.00	-89.94	1064.54	Begin/ Hold 90.5" Inc. 99.86' Azm
6	7931.61	90.50	99.86	2718.26	-188.20	5372.70	0.00	0.00	5376.90	TD at 7931.51 MD

DESIGN TARGET DETAILS									
Name	TVD	-N/A-S	-E/W	Northing	Easting	Latitude	Longitude	Shape	
BHL-Pdum 15 Fee #1H v5	2718.26	-188.20	5372.70	635431.90	491274.30	32° 44' 48.81599 N	104° 21' 42.16928 W	Point	
		- plan hts target center							
PP-Pdum 15 Fee #1H v5	2758.67	-175.08	755.00	635445.02	486656.50	32° 44' 48.93028 N	104° 22' 36.23802 W	Point	
		- plan hts target center							

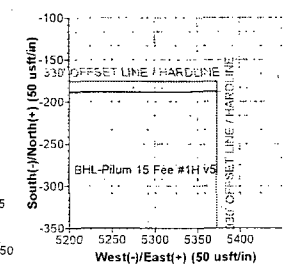
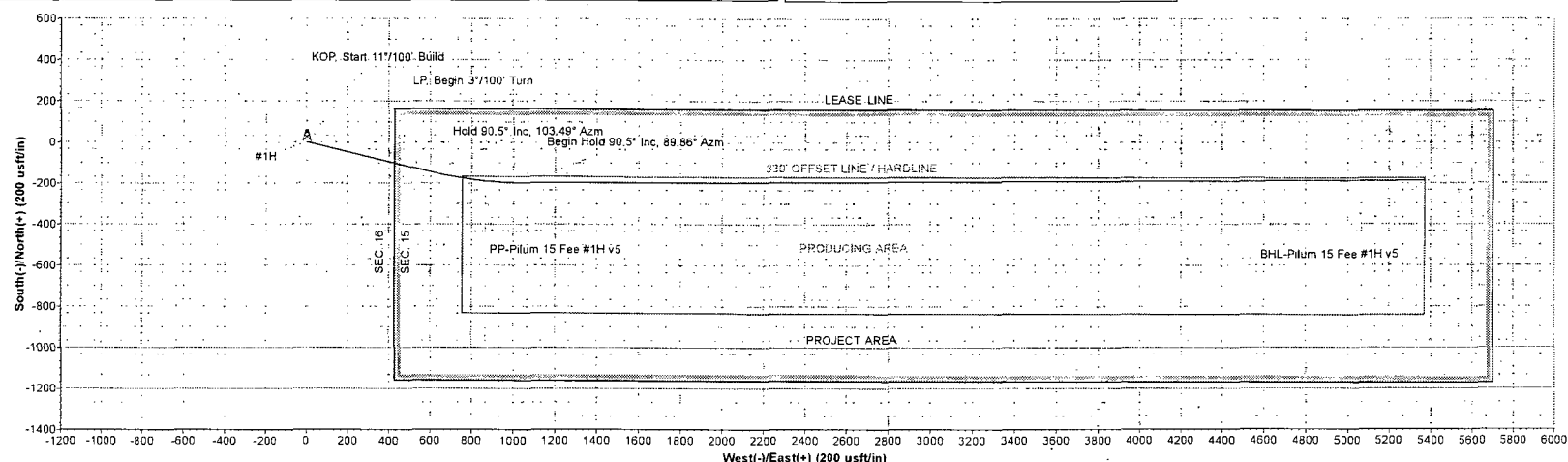
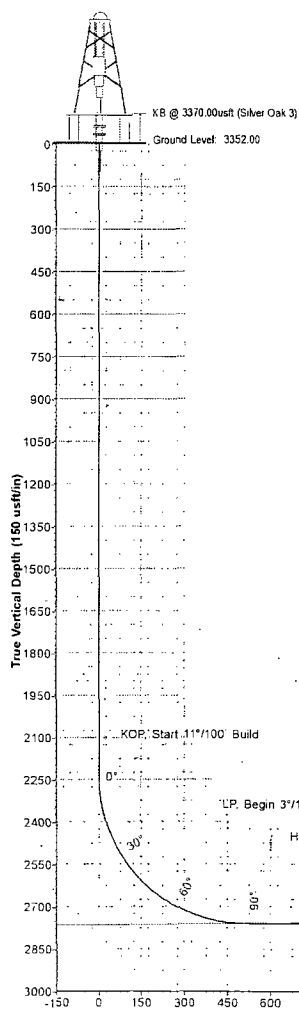
FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	DipAngle	DipDir
2790.67	3043.75	TL 2765' TVD @ 0 VZ. 80.5' Inc	-0.50	91.88

LEGEND

———— Plan #5 03-30-15

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Well #1H. Grid North
Latitude: 32° 44' 50.65979 N
Longitude: 104° 22' 45.07921 W
Grid East: 485901.60
Grid North: 635620.10
Scale Factor: 1.000
Geomagnetic Model: IGRF2010_14
Sample Date: 18-Dec-14
Magnetic Declination: 7.57°
Dip Angle from Horizontal: 60.45°
Magnetic Field Strength: 48492

To convert a Magnetic Direction to a Grid Direction, Add 7.59°
To convert a Magnetic Direction to a True Direction, Add 7.57° East
To convert a True Direction to a Grid Direction, Add 0.02°





COG Operating LLC

Eddy County, NM (NAD27 NME)

Pilum 15 Fee

#1H

WB1

Plan: Plan #5 03-30-15

Surface: 2485' FSL, 425' FEL, Sec 16, T18S, R26E, Unit I

PP: 330' FWL, 2310' FSL, Sec 15, T18S, R26E, Unit L

BHL: 2310' FSL, 330' FEL, Sec 15, T18S, R26E, Unit I

Standard Planning Report

30 March, 2015





Phoenix Technology Services
Planning Report



Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well #1H
Company:	COG Operating LLC	TVD Reference:	KB @ 3370.00usft (Silver Oak 3)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3370.00usft (Silver Oak 3)
Site:	Pilum 15 Fee	North Reference:	Grid
Well:	#1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1		
Design:	Plan #5 03-30-15		

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	Pilum 15 Fee				
Site Position:		Northing:	632,879.50 usft	Latitude:	32° 44' 23.54811 N
From:	Map	Easting:	487,958.90 usft	Longitude:	104° 22' 20.97828 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.02 °

Well	#1H					
Well Position	+N/-S	2,740.60 usft	Northing:	635,620.10 usft	Latitude:	32° 44' 50.65970 N
	+E/-W	-2,057.30 usft	Easting:	485,901.60 usft	Longitude:	104° 22' 45.07921 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	3,352.00 usft

Wellbore	WB1				
----------	-----	--	--	--	--

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	12/18/2014	7.57	60.45	48,492

Design	Plan #5 03-30-15				
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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	92.01	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,240.00	0.00	0.00	2,240.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,062.73	90.50	103.49	2,760.85	-122.57	510.92	11.00	11.00	0.00	103.49	
3,162.73	90.50	103.49	2,759.98	-145.89	608.16	0.00	0.00	0.00	0.00	
3,616.97	90.50	89.86	2,755.99	-198.58	1,058.24	3.00	0.00	-3.00	-89.94	
7,931.61	90.50	89.86	2,718.26	-188.20	5,372.70	0.00	0.00	0.00	0.00	BHL-Pilum 15 Fee #1



Phoenix Technology Services
Planning Report



Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well #1H
Company:	COG Operating LLC	TVD Reference:	KB @ 3370.00usft (Silver Oak 3)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3370.00usft (Silver Oak 3)
Site:	Pilum 15 Fee	North Reference:	Grid
Well:	#1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1		
Design:	Plan #5 03-30-15		

Planned 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
2,240.00	0.00	0.00	2,240.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Start 11°/100' Build									
2,300.00	6.60	103.49	2,299.87	-0.81	3.36	3.38	11.00	11.00	0.00
2,400.00	17.60	103.49	2,397.50	-5.69	23.71	23.89	11.00	11.00	0.00
2,500.00	28.60	103.49	2,489.34	-14.83	61.80	62.28	11.00	11.00	0.00
2,600.00	39.60	103.49	2,572.02	-27.88	116.24	117.14	11.00	11.00	0.00
2,700.00	50.60	103.49	2,642.49	-44.38	185.01	186.45	11.00	11.00	0.00
2,800.00	61.60	103.49	2,698.18	-63.72	265.60	267.66	11.00	11.00	0.00
2,900.00	72.60	103.49	2,737.04	-85.17	355.04	357.80	11.00	11.00	0.00
3,000.00	83.60	103.49	2,757.62	-107.96	450.04	453.54	11.00	11.00	0.00
3,043.75	88.41	103.49	2,760.67	-118.14	492.47	496.30	11.00	11.00	0.00
TL, 2765' TVD @ 0 VZ, 90.5° Inc									
3,062.73	90.50	103.49	2,760.85	-122.57	510.92	514.90	11.00	11.00	0.00
LP, Begin 3°/100' Turn									
3,100.00	90.50	103.49	2,760.53	-131.26	547.16	551.42	0.00	0.00	0.00
3,162.73	90.50	103.49	2,759.98	-145.89	608.16	612.89	0.00	0.00	0.00
Hold 90.5° Inc, 103.49° Azm									
3,200.00	90.50	102.37	2,759.65	-154.23	644.48	649.49	3.00	0.00	-3.00
3,300.00	90.50	99.37	2,758.78	-173.09	742.67	748.28	3.00	0.00	-3.00
3,400.00	90.50	96.37	2,757.90	-186.79	841.72	847.74	3.00	0.00	-3.00
3,500.00	90.50	93.37	2,757.02	-195.28	941.34	947.60	3.00	0.00	-3.00
3,600.00	90.50	90.37	2,756.14	-198.54	1,041.27	1,047.58	3.00	0.00	-3.00
3,616.97	90.50	89.86	2,755.99	-198.58	1,058.24	1,064.54	3.00	0.00	-3.00
Begin Hold 90.5° Inc, 89.86° Azm									
3,700.00	90.50	89.86	2,755.27	-198.38	1,141.27	1,147.51	0.00	0.00	0.00
3,800.00	90.50	89.86	2,754.39	-198.14	1,241.26	1,247.44	0.00	0.00	0.00
3,900.00	90.50	89.86	2,753.52	-197.90	1,341.26	1,347.36	0.00	0.00	0.00
4,000.00	90.50	89.86	2,752.64	-197.65	1,441.25	1,447.29	0.00	0.00	0.00
4,100.00	90.50	89.86	2,751.77	-197.41	1,541.25	1,547.22	0.00	0.00	0.00
4,200.00	90.50	89.86	2,750.89	-197.17	1,641.25	1,647.14	0.00	0.00	0.00
4,300.00	90.50	89.86	2,750.02	-196.93	1,741.24	1,747.07	0.00	0.00	0.00
4,400.00	90.50	89.86	2,749.14	-196.69	1,841.24	1,847.00	0.00	0.00	0.00
4,500.00	90.50	89.86	2,748.27	-196.45	1,941.23	1,946.92	0.00	0.00	0.00
4,600.00	90.50	89.86	2,747.39	-196.21	2,041.23	2,046.85	0.00	0.00	0.00
4,700.00	90.50	89.86	2,746.52	-195.97	2,141.23	2,146.77	0.00	0.00	0.00
4,800.00	90.50	89.86	2,745.65	-195.73	2,241.22	2,246.70	0.00	0.00	0.00
4,900.00	90.50	89.86	2,744.77	-195.49	2,341.22	2,346.63	0.00	0.00	0.00
5,000.00	90.50	89.86	2,743.90	-195.25	2,441.21	2,446.55	0.00	0.00	0.00
5,100.00	90.50	89.86	2,743.02	-195.01	2,541.21	2,546.48	0.00	0.00	0.00
5,200.00	90.50	89.86	2,742.15	-194.77	2,641.21	2,646.40	0.00	0.00	0.00
5,300.00	90.50	89.86	2,741.27	-194.53	2,741.20	2,746.33	0.00	0.00	0.00
5,400.00	90.50	89.86	2,740.40	-194.29	2,841.20	2,846.26	0.00	0.00	0.00
5,500.00	90.50	89.86	2,739.52	-194.05	2,941.19	2,946.18	0.00	0.00	0.00
5,600.00	90.50	89.86	2,738.65	-193.81	3,041.19	3,046.11	0.00	0.00	0.00
5,700.00	90.50	89.86	2,737.78	-193.57	3,141.18	3,146.04	0.00	0.00	0.00
5,800.00	90.50	89.86	2,736.90	-193.33	3,241.18	3,245.96	0.00	0.00	0.00
5,900.00	90.50	89.86	2,736.03	-193.09	3,341.18	3,345.89	0.00	0.00	0.00
6,000.00	90.50	89.86	2,735.15	-192.85	3,441.17	3,445.81	0.00	0.00	0.00
6,100.00	90.50	89.86	2,734.28	-192.60	3,541.17	3,545.74	0.00	0.00	0.00
6,200.00	90.50	89.86	2,733.40	-192.36	3,641.16	3,645.67	0.00	0.00	0.00
6,300.00	90.50	89.86	2,732.53	-192.12	3,741.16	3,745.59	0.00	0.00	0.00
6,400.00	90.50	89.86	2,731.65	-191.88	3,841.16	3,845.52	0.00	0.00	0.00
6,500.00	90.50	89.86	2,730.78	-191.64	3,941.15	3,945.44	0.00	0.00	0.00



Phoenix Technology Services
Planning Report



Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well #1H
Company:	COG Operating LLC	TVD Reference:	KB @ 3370.00usft (Silver Oak 3)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3370.00usft (Silver Oak 3)
Site:	Pilum 15 Fee	North Reference:	Grid
Well:	#1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1		
Design:	Plan #5 03-30-15		

Planned 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)
6,600.00	90.50	89.86	2,729.90	-191.40	4,041.15	4,045.37	0.00	0.00	0.00
6,700.00	90.50	89.86	2,729.03	-191.16	4,141.14	4,145.30	0.00	0.00	0.00
6,800.00	90.50	89.86	2,728.16	-190.92	4,241.14	4,245.22	0.00	0.00	0.00
6,900.00	90.50	89.86	2,727.28	-190.68	4,341.14	4,345.15	0.00	0.00	0.00
7,000.00	90.50	89.86	2,726.41	-190.44	4,441.13	4,445.08	0.00	0.00	0.00
7,100.00	90.50	89.86	2,725.53	-190.20	4,541.13	4,545.00	0.00	0.00	0.00
7,200.00	90.50	89.86	2,724.66	-189.96	4,641.12	4,644.93	0.00	0.00	0.00
7,300.00	90.50	89.86	2,723.78	-189.72	4,741.12	4,744.85	0.00	0.00	0.00
7,400.00	90.50	89.86	2,722.91	-189.48	4,841.11	4,844.78	0.00	0.00	0.00
7,500.00	90.50	89.86	2,722.03	-189.24	4,941.11	4,944.71	0.00	0.00	0.00
7,600.00	90.50	89.86	2,721.16	-189.00	5,041.11	5,044.63	0.00	0.00	0.00
7,700.00	90.50	89.86	2,720.29	-188.76	5,141.10	5,144.56	0.00	0.00	0.00
7,800.00	90.50	89.86	2,719.41	-188.52	5,241.10	5,244.49	0.00	0.00	0.00
7,900.00	90.50	89.86	2,718.54	-188.28	5,341.09	5,344.41	0.00	0.00	0.00
7,931.61	90.50	89.86	2,718.26	-188.20	5,372.70	5,376.00	0.00	0.00	0.00

TD at 7931.61' MD

Design Targets

Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BHL-Pilum 15 Fee #1H v	- plan hits target center	0.00	0.00	2,718.26	-188.20	5,372.70	635,431.90	491,274.30	32° 44' 48.81599 N	104° 21' 42.16929 W
PP-Pilum 15 Fee #1H v	- plan hits target center	0.00	0.00	2,758.67	-175.08	755.00	635,445.02	486,656.60	32° 44' 48.93028 N	104° 22' 36.23803 W
	- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,043.75	2,760.67	TL, 2765' TVD @ 0 VZ, 90.5° Inc		-0.50	91.88

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	Comment
2,240.00	2,240.00	+N/-S (usft) 0.00	KOP. Start 11°/100' Build
3,062.73	2,760.85	+E/-W (usft) 510.92	LP, Begin 3°/100' Turn
3,162.73	2,759.98		Hold 90.5° Inc, 103.49° Azm
3,616.97	2,755.99		Begin Hold 90.5° Inc, 89.86° Azm
7,931.61	2,718.26		TD at 7931.61' MD