

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. 30-015-43004
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 Bradley 8 Fee
4. Well Location Unit Letter M ; 150 feet from the SOUTH line and 990 feet from the WEST line Section 8 Township 19S Range 26E NMPM County EDDY		8. Well Number 5H
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3373'		9. OGRID Number 229137
		10. Pool name or Wildcat Wildcat G-01 S192617K Glor-Yeso97788

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 ☐

OTHER: **Change Location** ☒

SUBSEQUENT REPORT OF:

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

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 submitted APD for this well at this location:

SHL: 150' FSL & 990' FWL, Unit M

BHL: 330' FNL & 985' FWL, Unit D

COG Operating LLC respectfully requests permission to change the location to:

SHL: 150' FSL & 1157' FWL, Unit M

BHL: 330' FNL & 1157' FWL, Unit D

NM OIL CONSERVATION

ARTESIA DISTRICT

AUG 7 2015

RECEIVED

Reason for the location change is it is too close to an existing well.

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 [Signature] TITLE Permitting Tech DATE 08/07/2015

Type or print name Kelly J. Holly E-mail address: kholly@concho.com PHONE: 432-685-4384

For State Use Only

APPROVED BY: [Signature] TITLE Dist. JCSuperior DATE 8/14/15

Conditions of Approval (if any):

DISTRICT I
1625 N. French Dr., Hobbs, NM 88249
Phone: (505) 395-6167 Fax: (505) 395-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 394-6170

DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87810
Phone: (505) 234-6178 Fax: (505) 394-6170

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, New Mexico 87505

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

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-43004	Pool Code 97788	Pool Name wildcat; G-01 S192617K Gler-Yeso
Property Code 39004	Property Name BRADLEY 8 FEE	Well Number 5H
GRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3372'

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	8	19-S	26-E		150	SOUTH	1157	WEST	EDDY

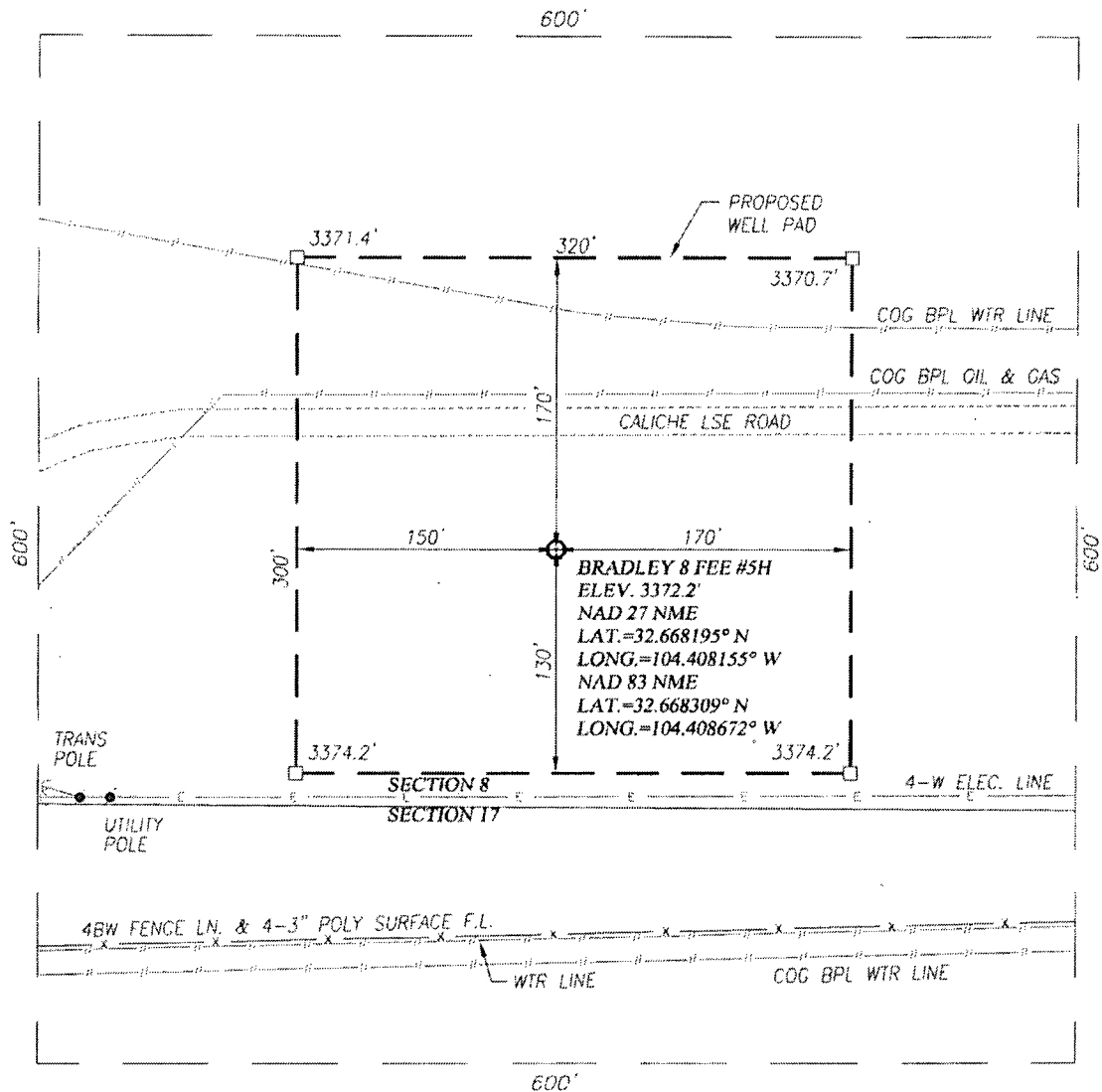
Bottom Hole Location If Different From Surface									
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	8	19-S	26-E		330	NORTH	1157	WEST	EDDY

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

	GEODETIC COORDINATES NAD 27 NME BOTTOM HOLE LOCATION Y= 611643.0 N X= 476901.1 E LAT.=32.681484° N LONG.=104.408408° W	GEODETIC COORDINATES NAD 83 NME BOTTOM HOLE LOCATION Y= 611704.6 N X= 518079.9 E LAT.=32.681597° N LONG.=104.408925° W	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 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature 8-7-15 Date Kelly J. Holly Printed Name kholly@concho.com E-mail Address	
	CORNER COORDINATES TABLE NAD 27 NME A - Y= 611972.4 N, X= 475739.2 E B - Y= 611972.9 N, X= 477054.2 E C - Y= 606657.7 N, X= 477143.4 E D - Y= 606665.7 N, X= 475820.8 E			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. MAY 13, 2015 Date of Survey Signature & Seal of Professional Surveyor Certificate Number: Gary G. Eidson 12641 Ronald J. Eidson 3239 LSL JWSC W.O. 1311 0573
	CORNER COORDINATES TABLE NAD 83 NME A - Y= 612034.1 N, X= 516918.0 E B - Y= 612034.6 N, X= 518233.0 E C - Y= 606719.7 N, X= 518322.2 E D - Y= 606727.1 N, X= 516998.6 E			
	GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y= 606808.7 N X= 476975.5 E LAT.=32.668195° N LONG.=104.408155° W	GEODETIC COORDINATES NAD 83 NME SURFACE LOCATION Y= 606870.2 N X= 518154.3 E LAT.=32.668309° N LONG.=104.408672° W		

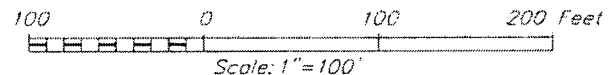
WELL SITE PLAN



NOTE:
1) SEE "TOPOGRAPHICAL AND ACCESS
ROAD MAP" FOR PROPOSED ROAD
LOCATION.

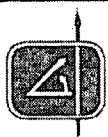
DIRECTIONS TO THIS LOCATION:

FROM THE INTERSECTION OF U.S. HWY 285 AND CO. RD. 21
(ROCKIN R RED), GO WEST APPROX. 0.5 MILES, TURN RIGHT
AND GO NORTH APPROX. 0.9 MILES, TURN LEFT AND GO WEST
APPROX. 0.1 MILES TO THIS LOCATION.



COG OPERATING, LLC

BRADLEY 8 FEE #5H WELL
LOCATED 150 FEET FROM THE SOUTH LINE
AND 1157 FEET FROM THE WEST LINE OF SECTION 8,
TOWNSHIP 19 SOUTH, RANGE 26 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO



PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000

Survey Date: 5/13/15

CAD Date: 5/22/15

Drawn By: LSL

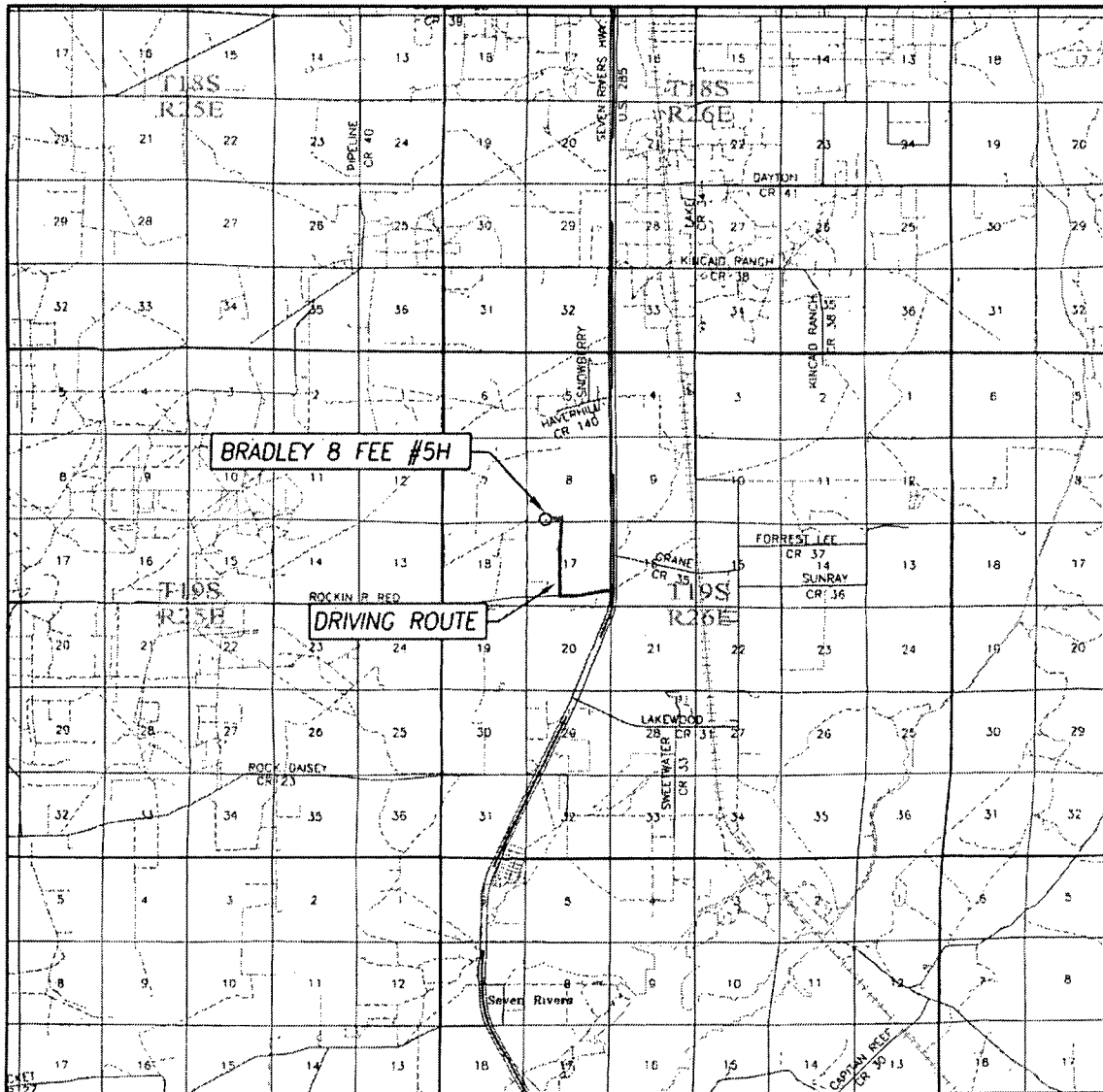
W.O. No.: 15110573

Rev.:

Rel. W.O.:

Sheet 1 of 1

VICINITY MAP



SCALE: 1" = 2 MILES

DRIVING ROUTE: SEE TOPOGRAPHICAL AND ACCESS ROAD MAP

SEC. 8 TWP. 19-S RGE. 26-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 150' FSL & 1157' FWL

ELEVATION 3372'

OPERATOR COG OPERATING, LLC

LEASE BRADLEY 8 FEE



PROVIDING SURVEYING SERVICES

SINCE 1946

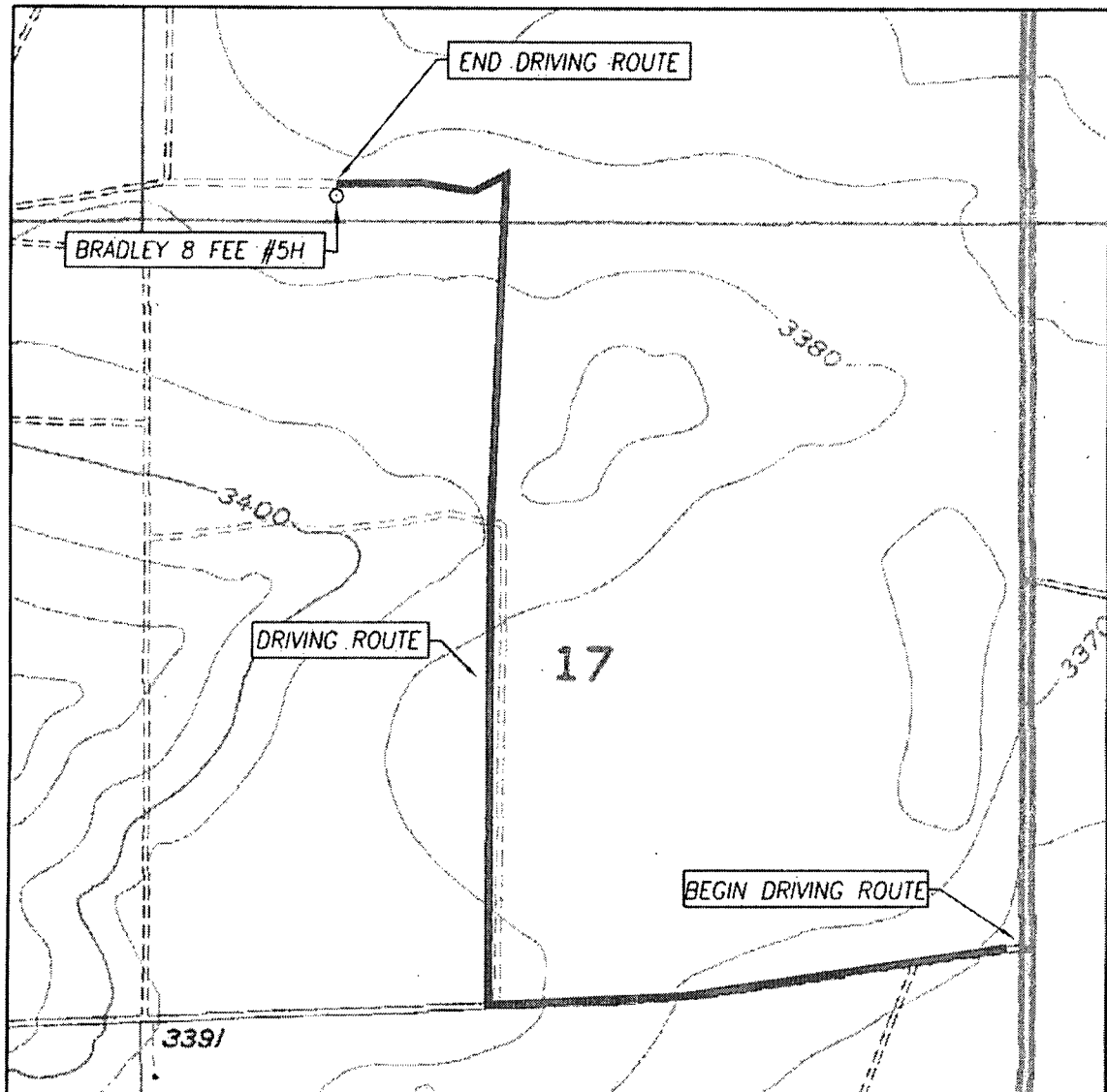
JOHN WEST SURVEYING COMPANY

412 N. DAL PASO HOBBS, N.M. 88240

(575) 393-3117 www.jwsc.biz

TBPLS# 10021000

TOPOGRAPHICAL AND ACCESS ROAD MAP



SCALE: 1" = 1000'

CONTOUR INTERVAL:
DAYTON, N.M. - 10'

SEC. 8 TWP. 19-S RGE. 26-E
SURVEY N.M.P.M.
COUNTY EDDY STATE NEW MEXICO
DESCRIPTION 150' FSL & 1157' FWL
ELEVATION 3372'

OPERATOR COG OPERATING, LLC
LEASE BRADLEY 8 FEE
U.S.G.S. TOPOGRAPHIC MAP
DAYTON, N.M.

DIRECTIONS TO THIS LOCATION:

FROM THE INTERSECTION OF U.S. HWY 285 AND CO. RD. 21
(ROCKIN R RED), GO WEST APPROX. 0.5 MILES, TURN RIGHT AND GO
NORTH APPROX. 0.9 MILES, TURN LEFT AND GO WEST APPROX. 0.1
MILES TO THIS LOCATION.



PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO HOBBS, N.M. 88240
(575) 393-3117 www.jwsc.biz
TBPLS# 10021000



Phoenix Technology Services LP
Anticollision Report



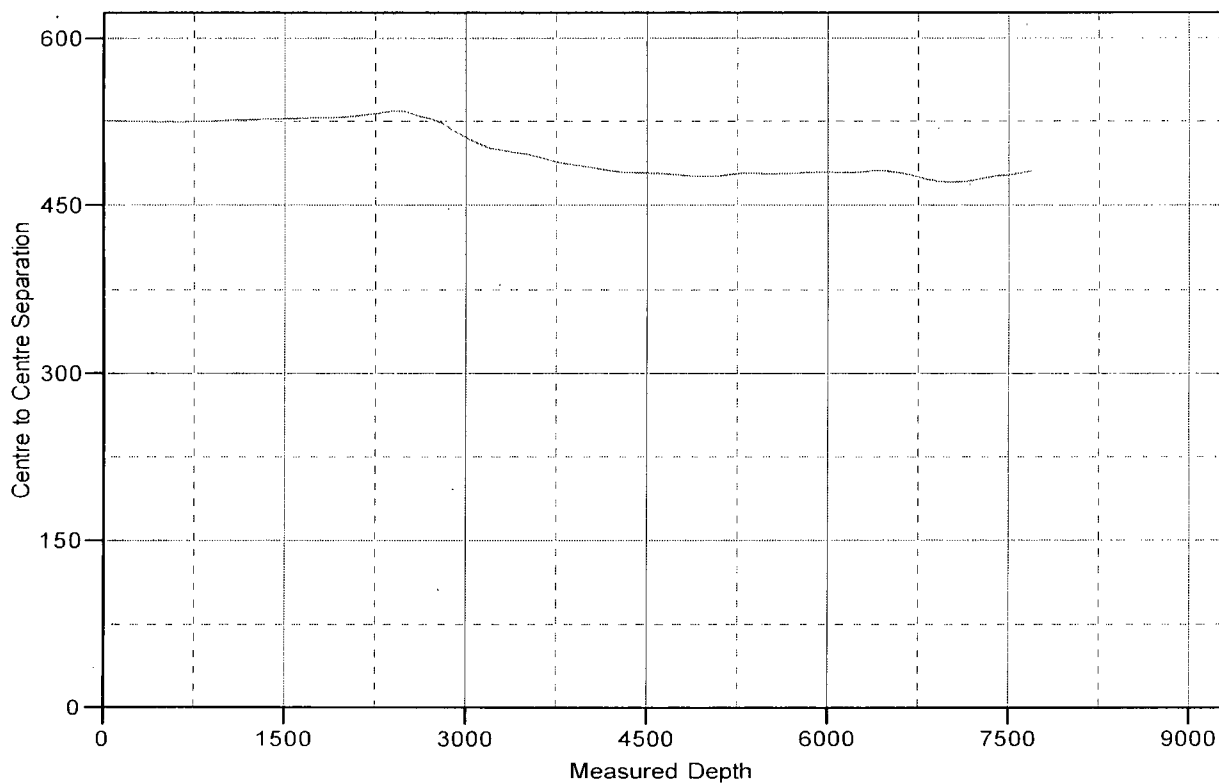
Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Reference Site: Bradley 8 Fee
Site Error: 0.00 usft
Reference Well: #5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #2 08-06-15

Local Co-ordinate Reference: Well #5H
TVD Reference: KB @ 3390.00usft (Silver Oak 3)
MD Reference: KB @ 3390.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass 5000 GCR
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB @ 3390.00usft (Silver Oak 3)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: #5H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: -0.04°

Ladder Plot



LEGEND

✕ #1H, OH/Job #1310555, Surveys (JW4) V0



Phoenix Technology Services LP
Anticollision Report



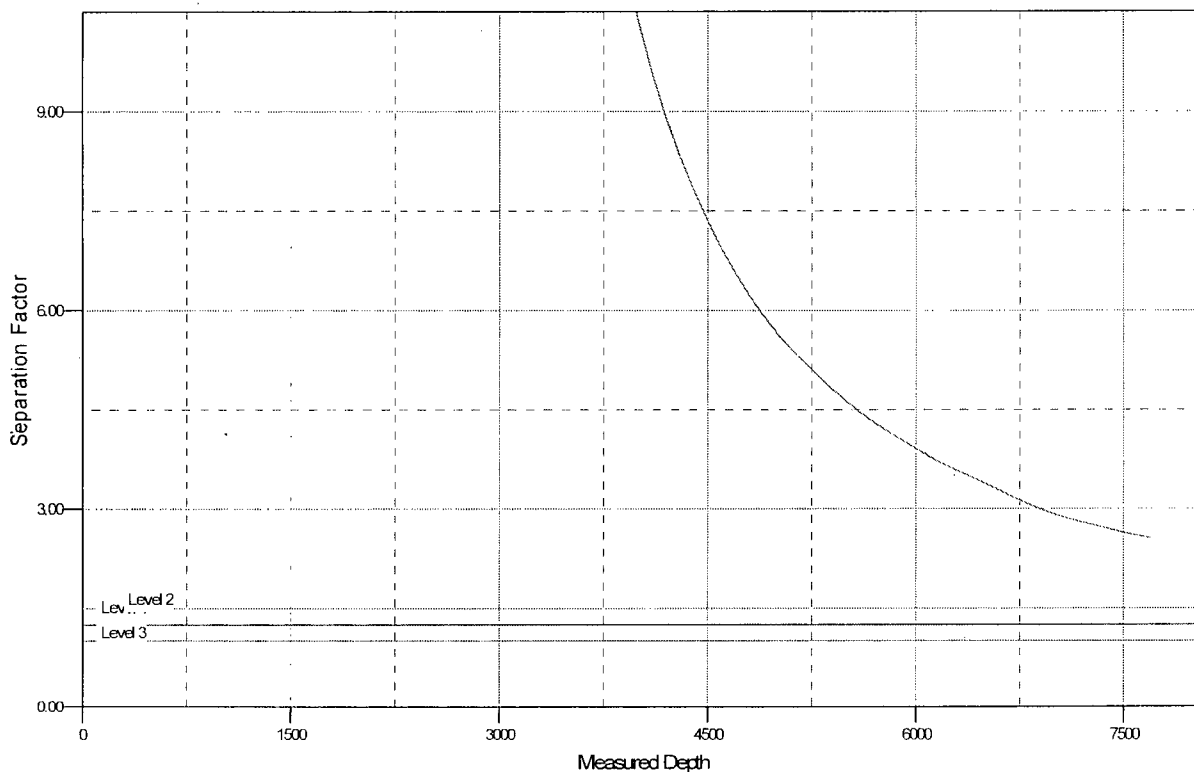
Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Reference Site: Bradley 8 Fee
Site Error: 0.00 usft
Reference Well: #5H
Well Error: 0.00 usft
Reference Wellbore: OH
Reference Design: Plan #2 08-06-15

Local Co-ordinate Reference: Well #5H
TVD Reference: KB @ 3390.00usft (Silver Oak 3)
MD Reference: KB @ 3390.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: Compass 5000 GCR
Offset-TVD Reference: Offset Datum

Reference Depths are relative to KB @ 3390.00usft (Silver Oak 3)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: #5H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: -0.04°

Separation Factor Plot



LEGEND

✱ #1H, OH/Job #1310555, Surveys (JW4) V0



Project: Eddy County, NM (NAD27 NME)
Site: Bradley & Fee
Well: #5H
Wellbore: OH
Design: Plan #2 08-06-15
Rig: Silver Oak 3



Azimuths to Grid North
True North: 0.04°
Magnetic North: 7.66°
Magnetic Field
Strength: 48429.9nT
Dip Angle: 60.53°
Date: 8/6/2015
Model: HDGM

WELL DETAILS

	-N/-S	-E/-W	Northing	Ground Level	Easting	3372.00	Latitude	Longitude
	0.00	0.00	306808.70		175975.50		32° 40' 5.50312 N	104° 24' 29.35747 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	-N/-S	-E/-W	Dleg	TFace	VSec	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	2554.57	0.00	0.00	2554.57	0.00	0.00	0.00	0.00	0.00		KOP, Start 11°/100' Build
3	3377.29	90.50	359.12	3075.42	525.35	-8.09	11.00	359.12	525.42		LP, Hold 90.5° Inc. 359.12° Azm
4	7686.91	90.50	359.12	3037.81	4834.30	-74.40	0.00	4834.87			TD at 7686.91' MD

DESIGN TARGET DETAILS

Name	TVD	-N/-S	-E/-W	Northing	Easting	Latitude	Longitude	Shape
PP-Bradley 8 #5H	2848.43	180.00	-2.77	606888.70	476972.73	32° 40' 7.28432 N	104° 24' 29.39136 W	Point
PEHL-Bradley 8 #5H	3037.81	4834.30	-74.40	611643.00	476901.10	32° 40' 53.34118 N	104° 24' 30.26786 W	Point

LEGEND

— #1H, OH/Job #1310555 Surveys (JW 4) V0
— Plan #2 08-06-15

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 #5H, Grid North

Latitude: 32° 40' 5.50312 N
Longitude: 104° 24' 29.35747 W

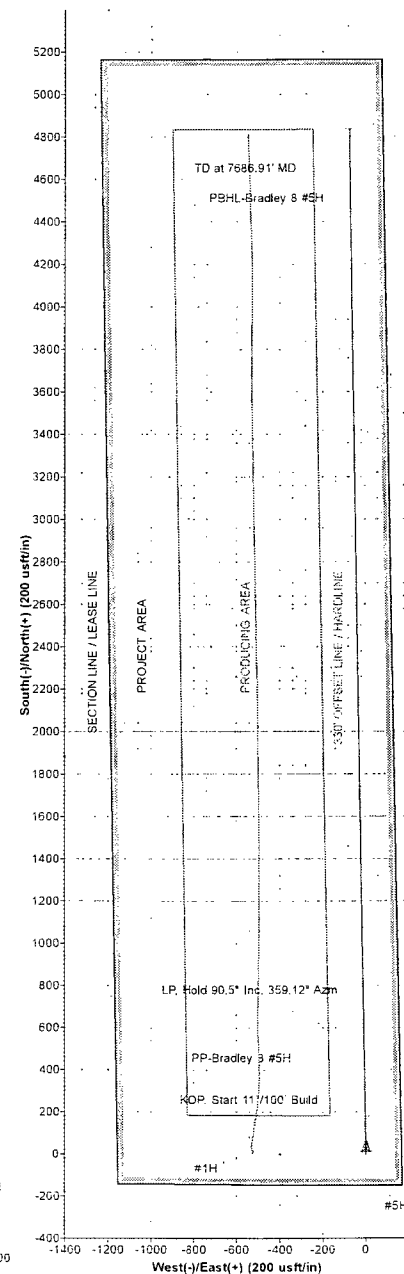
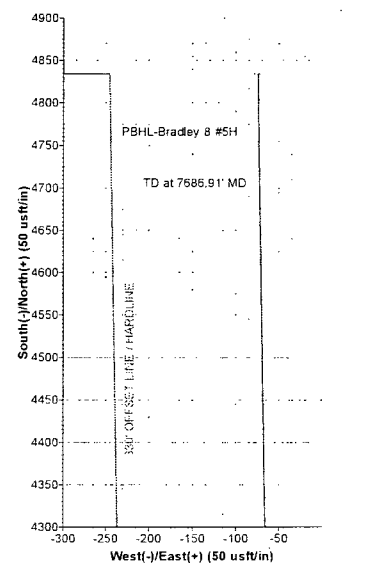
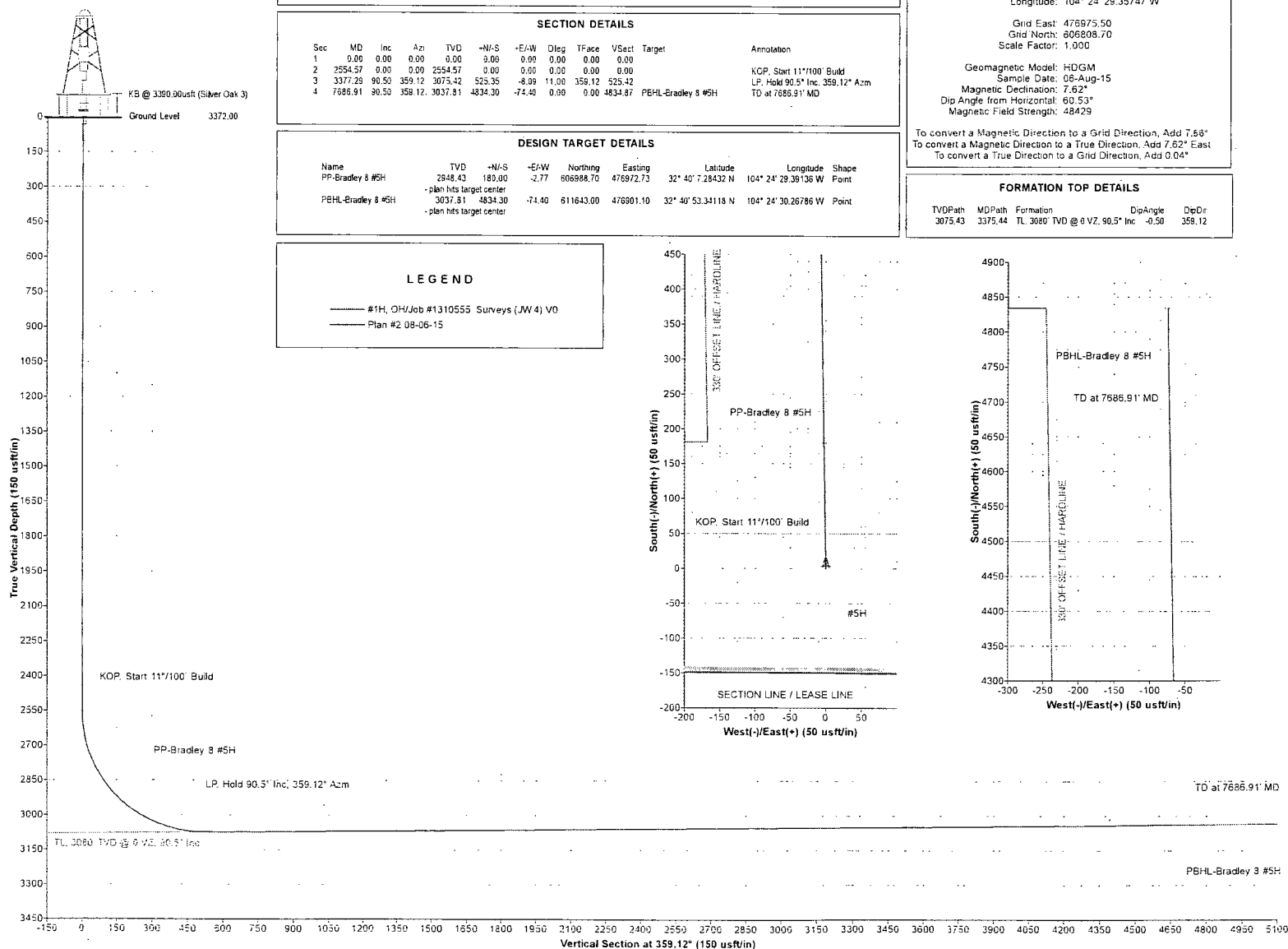
Grid East: 476975.50
Grid North: 606808.70
Scale Factor: 1.000

Geomagnetic Model: HDGM
Sample Date: 08-Aug-15
Magnetic Declination: 7.62°
Dip Angle from Horizontal: 60.53°
Magnetic Field Strength: 48429

To convert a Magnetic Direction to a Grid Direction, Add 7.62°
To convert a Magnetic Direction to a True Direction, Add 7.62° East
To convert a True Direction to a Grid Direction, Add 0.04°

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3075.43	3375.44	TL 3080 TVD @ 0 VZ, 90.5° Inc	-0.50	359.12





Phoenix Technology Services LP
Planning Report



Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well #5H
Company:	COG Operating LLC	TVD Reference:	KB @ 3390.00usft (Silver Oak 3)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3390.00usft (Silver Oak 3)
Site:	Bradley 8 Fee	North Reference:	Grid
Well:	#5H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 08-06-15		

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	Bradley 8 Fee		
Site Position:	Northing:	606,797.50 usft	Latitude: 32° 40' 5.40482 N
From: Map	Easting:	478,847.80 usft	Longitude: 104° 24' 7.45386 W
Position Uncertainty:	Slot Radius:	13-3/16 "	Grid Convergence: -0.04 °

Well	#5H		
Well Position	+N/-S	11.20 usft	Northing: 606,808.70 usft
	+E/-W	-1,872.30 usft	Easting: 476,975.50 usft
Position Uncertainty		0.00 usft	Wellhead Elevation: 0.00 usft
			Ground Level: 3,372.00 usft

Wellbore	OH		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/6/2015	7.62	60.53	48,429

Design	Plan #2 08-06-15		
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Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	359.12

Plan Sections										
Measured	Inclination	Azimuth	Vertical			Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	+N/-S	+E/-W	Rate	Rate	Rate	(°)	
(usft)			(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,554.57	0.00	0.00	2,554.57	0.00	0.00	0.00	0.00	0.00	0.00	
3,377.29	90.50	359.12	3,075.42	525.35	-8.09	11.00	11.00	0.00	359.12	
7,686.92	90.50	359.12	3,037.81	4,834.30	-74.40	0.00	0.00	0.00	0.00	PBHL-Bradley 8 #5H



Phoenix Technology Services LP
Planning Report



Database: Compass 5000 GCR
Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Site: Bradley 8 Fee
Well: #5H
Wellbore: OH
Design: Plan #2 08-06-15

Local Co-ordinate Reference:
TVD Reference: KB @ 3390.00usft (Silver Oak 3)
MD Reference: KB @ 3390.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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
2,554.57	0.00	0.00	2,554.57	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Start 11°/100' Build									
2,600.00	5.00	359.12	2,599.94	1.98	-0.03	1.98	11.00	11.00	0.00
2,700.00	16.00	359.12	2,698.12	20.17	-0.31	20.17	11.00	11.00	0.00
2,800.00	27.00	359.12	2,791.02	56.75	-0.87	56.76	11.00	11.00	0.00
2,900.00	38.00	359.12	2,875.23	110.39	-1.70	110.41	11.00	11.00	0.00
3,000.00	49.00	359.12	2,947.66	179.11	-2.76	179.13	11.00	11.00	0.00
3,001.17	49.13	359.12	2,948.43	180.00	-2.77	180.02	11.00	11.00	0.00
PP-Bradley 8 #5H									
3,100.00	60.00	359.12	3,005.64	260.39	-4.01	260.42	11.00	11.00	0.00
3,200.00	71.00	359.12	3,047.05	351.23	-5.41	351.27	11.00	11.00	0.00
3,300.00	82.00	359.12	3,070.37	448.30	-6.90	448.36	11.00	11.00	0.00
3,375.44	90.30	359.12	3,075.43	523.50	-8.06	523.56	11.00	11.00	0.00
TL, 3080' TVD @ 0 VZ, 90.5° Inc									
3,377.29	90.50	359.12	3,075.42	525.35	-8.09	525.41	11.00	11.00	0.00
LP, Hold 90.5° Inc, 359.12° Azm									
3,400.00	90.50	359.12	3,075.22	548.06	-8.43	548.12	0.00	0.00	0.00
3,500.00	90.50	359.12	3,074.35	648.04	-9.97	648.12	0.00	0.00	0.00
3,600.00	90.50	359.12	3,073.47	748.02	-11.51	748.11	0.00	0.00	0.00
3,700.00	90.50	359.12	3,072.60	848.01	-13.05	848.11	0.00	0.00	0.00
3,800.00	90.50	359.12	3,071.73	947.99	-14.59	948.11	0.00	0.00	0.00
3,900.00	90.50	359.12	3,070.86	1,047.98	-16.13	1,048.10	0.00	0.00	0.00
4,000.00	90.50	359.12	3,069.98	1,147.96	-17.67	1,148.10	0.00	0.00	0.00
4,100.00	90.50	359.12	3,069.11	1,247.95	-19.21	1,248.09	0.00	0.00	0.00
4,200.00	90.50	359.12	3,068.24	1,347.93	-20.74	1,348.09	0.00	0.00	0.00
4,300.00	90.50	359.12	3,067.37	1,447.92	-22.28	1,448.09	0.00	0.00	0.00
4,400.00	90.50	359.12	3,066.49	1,547.90	-23.82	1,548.08	0.00	0.00	0.00
4,500.00	90.50	359.12	3,065.62	1,647.88	-25.36	1,648.08	0.00	0.00	0.00
4,600.00	90.50	359.12	3,064.75	1,747.87	-26.90	1,748.08	0.00	0.00	0.00
4,700.00	90.50	359.12	3,063.88	1,847.85	-28.44	1,848.07	0.00	0.00	0.00
4,800.00	90.50	359.12	3,063.00	1,947.84	-29.98	1,948.07	0.00	0.00	0.00
4,900.00	90.50	359.12	3,062.13	2,047.82	-31.52	2,048.06	0.00	0.00	0.00
5,000.00	90.50	359.12	3,061.26	2,147.81	-33.05	2,148.06	0.00	0.00	0.00
5,100.00	90.50	359.12	3,060.38	2,247.79	-34.59	2,248.06	0.00	0.00	0.00
5,200.00	90.50	359.12	3,059.51	2,347.77	-36.13	2,348.05	0.00	0.00	0.00
5,300.00	90.50	359.12	3,058.64	2,447.76	-37.67	2,448.05	0.00	0.00	0.00
5,400.00	90.50	359.12	3,057.77	2,547.74	-39.21	2,548.04	0.00	0.00	0.00
5,500.00	90.50	359.12	3,056.89	2,647.73	-40.75	2,648.04	0.00	0.00	0.00
5,600.00	90.50	359.12	3,056.02	2,747.71	-42.29	2,748.04	0.00	0.00	0.00
5,700.00	90.50	359.12	3,055.15	2,847.70	-43.83	2,848.03	0.00	0.00	0.00
5,800.00	90.50	359.12	3,054.28	2,947.68	-45.36	2,948.03	0.00	0.00	0.00
5,900.00	90.50	359.12	3,053.40	3,047.66	-46.90	3,048.03	0.00	0.00	0.00
6,000.00	90.50	359.12	3,052.53	3,147.65	-48.44	3,148.02	0.00	0.00	0.00
6,100.00	90.50	359.12	3,051.66	3,247.63	-49.98	3,248.02	0.00	0.00	0.00
6,200.00	90.50	359.12	3,050.79	3,347.62	-51.52	3,348.01	0.00	0.00	0.00
6,300.00	90.50	359.12	3,049.91	3,447.60	-53.06	3,448.01	0.00	0.00	0.00
6,400.00	90.50	359.12	3,049.04	3,547.59	-54.60	3,548.01	0.00	0.00	0.00
6,500.00	90.50	359.12	3,048.17	3,647.57	-56.14	3,648.00	0.00	0.00	0.00
6,600.00	90.50	359.12	3,047.30	3,747.56	-57.67	3,748.00	0.00	0.00	0.00
6,700.00	90.50	359.12	3,046.42	3,847.54	-59.21	3,848.00	0.00	0.00	0.00
6,800.00	90.50	359.12	3,045.55	3,947.52	-60.75	3,947.99	0.00	0.00	0.00
6,900.00	90.50	359.12	3,044.68	4,047.51	-62.29	4,047.99	0.00	0.00	0.00
7,000.00	90.50	359.12	3,043.80	4,147.49	-63.83	4,147.98	0.00	0.00	0.00



Phoenix Technology Services LP
Planning Report



Database: Compass 5000 GCR
Company: COG Operating LLC
Project: Eddy County, NM (NAD27 NME)
Site: Bradley 8 Fee
Well: #5H
Wellbore: OH
Design: Plan #2 08-06-15

Local Co-ordinate Reference:
TVD Reference: KB @ 3390.00usft (Silver Oak 3)
MD Reference: KB @ 3390.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
7,100.00	90.50	359.12	3,042.93	4,247.48	-65.37	4,247.98	0.00	0.00	0.00
7,200.00	90.50	359.12	3,042.06	4,347.46	-66.91	4,347.98	0.00	0.00	0.00
7,300.00	90.50	359.12	3,041.19	4,447.45	-68.45	4,447.97	0.00	0.00	0.00
7,400.00	90.50	359.12	3,040.31	4,547.43	-69.99	4,547.97	0.00	0.00	0.00
7,500.00	90.50	359.12	3,039.44	4,647.41	-71.52	4,647.96	0.00	0.00	0.00
7,600.00	90.50	359.12	3,038.57	4,747.40	-73.06	4,747.96	0.00	0.00	0.00
7,686.91	90.50	359.12	3,037.81	4,834.30	-74.40	4,834.87	0.00	0.00	0.00

TD at 7686.91' MD - PBHL-Bradley 8 #5H

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
PP-Bradley 8 #5H	- plan hits target center - Point	0.00	360.00	2,948.43	180.00	-2.77	606,988.70	476,972.73	32° 40' 7.28432 N	104° 24' 29.39136 W
PBHL-Bradley 8 #5H	- plan hits target center - Point	0.00	360.00	3,037.81	4,834.30	-74.40	611,643.00	476,901.10	32° 40' 53.34118 N	104° 24' 30.26786 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,375.44	3,075.43	TL, 3080' TVD @ 0 VZ, 90.5° Inc		-0.50	359.12

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	Comment
2,554.57	2,554.57	+N/-S (usft) 0.00 +E/-W (usft) 0.00	KOP, Start 11°/100' Build
3,377.29	3,075.42	+N/-S (usft) 525.35 +E/-W (usft) -8.09	LP, Hold 90.5° Inc, 359.12° Azm
7,686.91	3,037.81	+N/-S (usft) 4,834.30 +E/-W (usft) -74.40	TD at 7686.91' MD