

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 Rio Brazos 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

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

ARTESIA DISTRICT

JAN 07 2015

RECEIVED

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- 42888	Pool Code 3250	Pool Name Atoka; Glorieta Yeso
Property Code 38909	Property Name SHERMAN 4 FEE	
Well Number 26H		
OGRID No. 229137	Operator Name COG OPERATING, LLC	
Elevation 3345'		

Surface Location

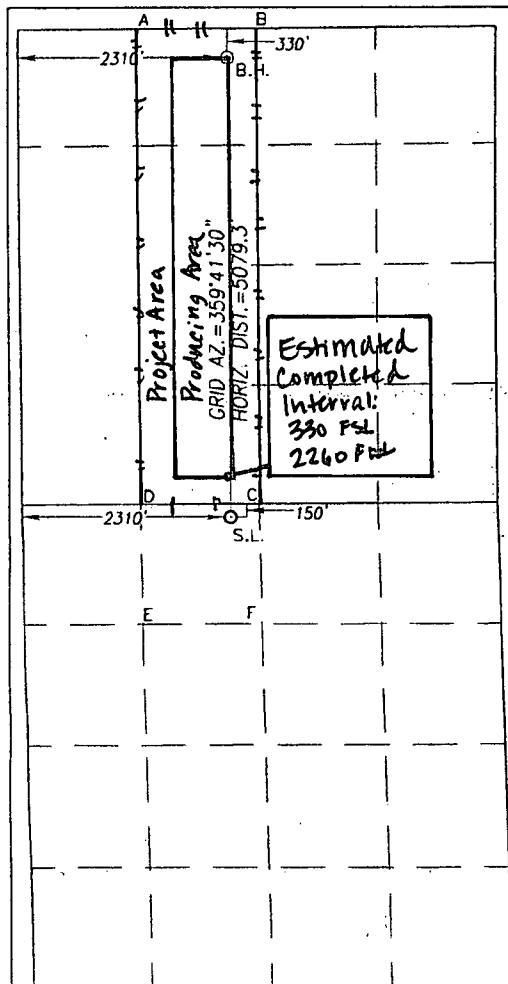
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	9	19-S	26-E		150	NORTH	2310	WEST	EDDY

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
C	4	19-S	26-E		330	NORTH	2310	WEST	EDDY

Dedicated Acres 159.06	Joint or Infill	Consolidation Code	Order No.
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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



BOTTOM HOLE LOCATION

Y= 616917.4 N
X= 483284.6 E

LAT.=32.695993° N
LONG.=104.387669° W

CORNER COORDINATES TABLE

A - Y= 617241.1 N, X= 482293.4 E
B - Y= 617249.4 N, X= 483613.2 E
C - Y= 611991.5 N, X= 483626.0 E
D - Y= 611983.0 N, X= 482312.6 E
E - Y= 610646.0 N, X= 482342.8 E
F - Y= 610652.7 N, X= 483658.5 E

GEODETIC COORDINATES
NAD 27 NME

SURFACE LOCATION
Y= 611839.5 N
X= 483311.8 E

LAT.=32.682035° N
LONG.=104.387572° 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 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.


Signature

12-30-14
Date

Kelly J. Holly
Printed Name

kholly@concho.com
E-mail Address

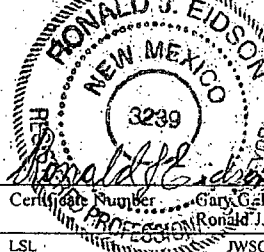
SURVEYOR CERTIFICATION

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.

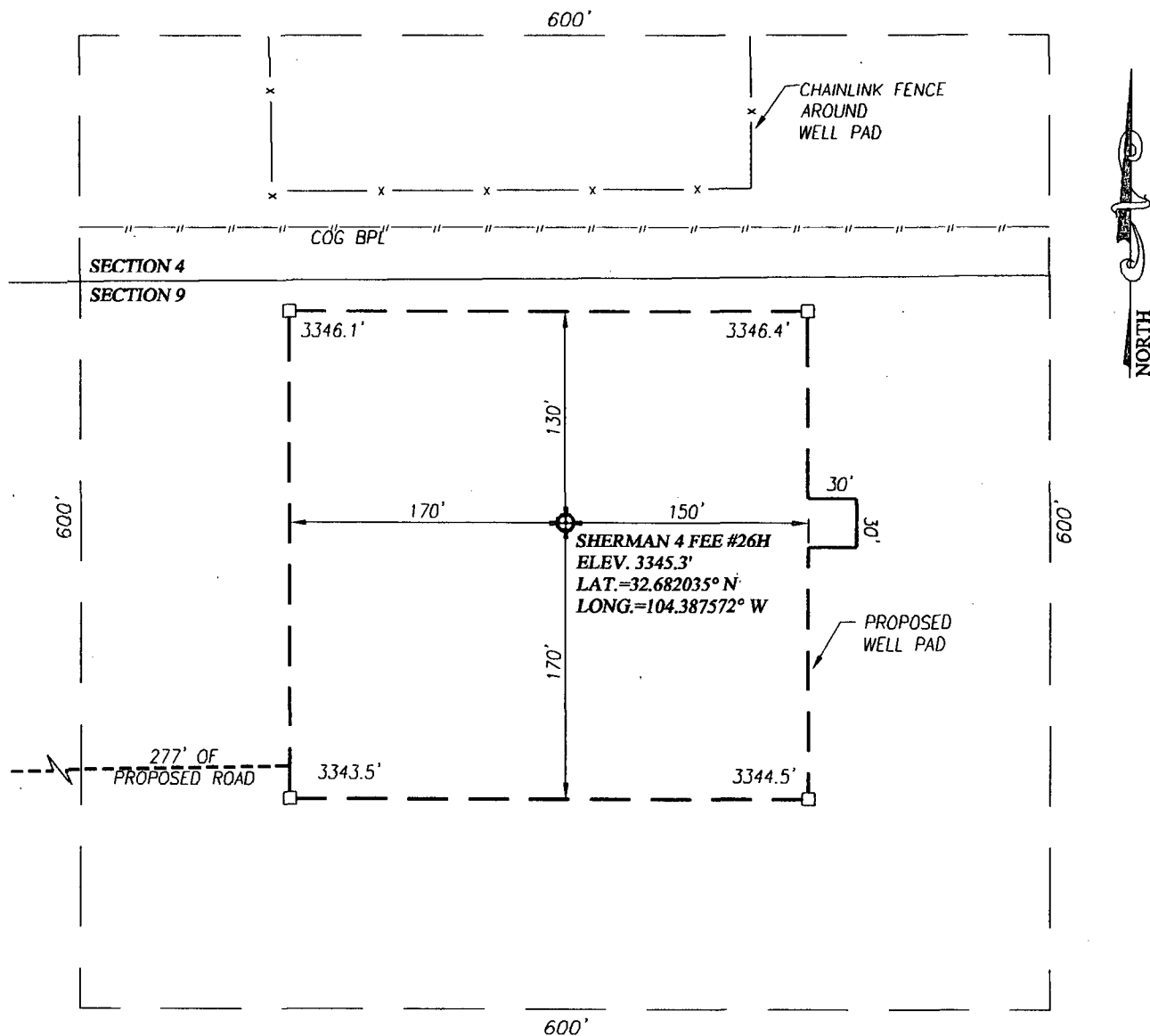
SEPTEMBER 9, 2014

Date of Survey

Signature & Seal of Professional Surveyor:

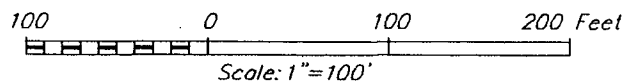


Certificate Number **3239**
Gary C. Eidson 12641
Ronald J. Eidson 3239
LSL JWSC W.O.: 14.11.0912



DIRECTIONS TO SHERMAN 4 FEE #26H:

FROM THE INTERSECTION OF U.S. 285 AND CO. RD. 140, GO SOUTH ON U.S. 285 APPROX. 0.2 MILES TO CALICHE LEASE ROAD. TURN LEFT AND GO EAST APPROX. 504', THEN TURN RIGHT AND GO SOUTH APPROX. 0.15 MILES, TURN LEFT AND GO EAST APPROX. 0.2 MILES, THEN TURN RIGHT AND GO SOUTH APPROX. 435', TO THE STONEWALL 9 FEE #2H FROM THE SOUTHEAST PAD CORNER FOLLOW PROPOSED ROAD SURVEY 277' EAST TO THE LOCATION.



COG OPERATING, LLC

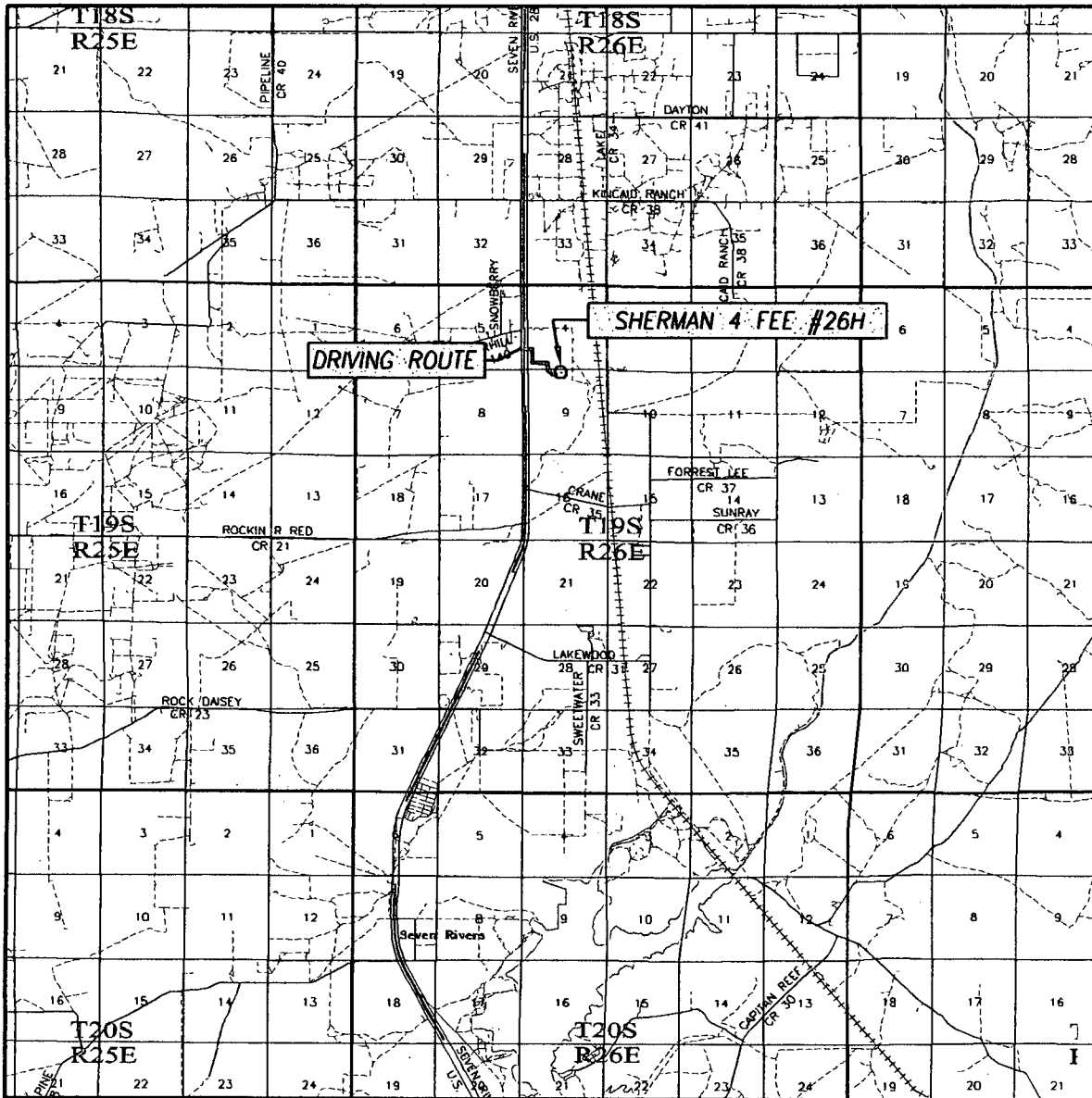
SHERMAN 4 FEE #26H WELL
LOCATED 150 FEET FROM THE NORTH LINE
AND 2310 FEET FROM THE WEST LINE OF SECTION 9,
TOWNSHIP 19 SOUTH, RANGE 26 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO



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

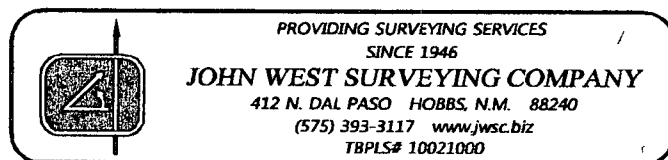
Survey Date: 9/9/14	CAD Date: 9/30/14	Drawn By: LSL
W.O. No.: 14110912	Rev: .	Rel. W.O.: Sheet 1 of 1

VICINITY MAP

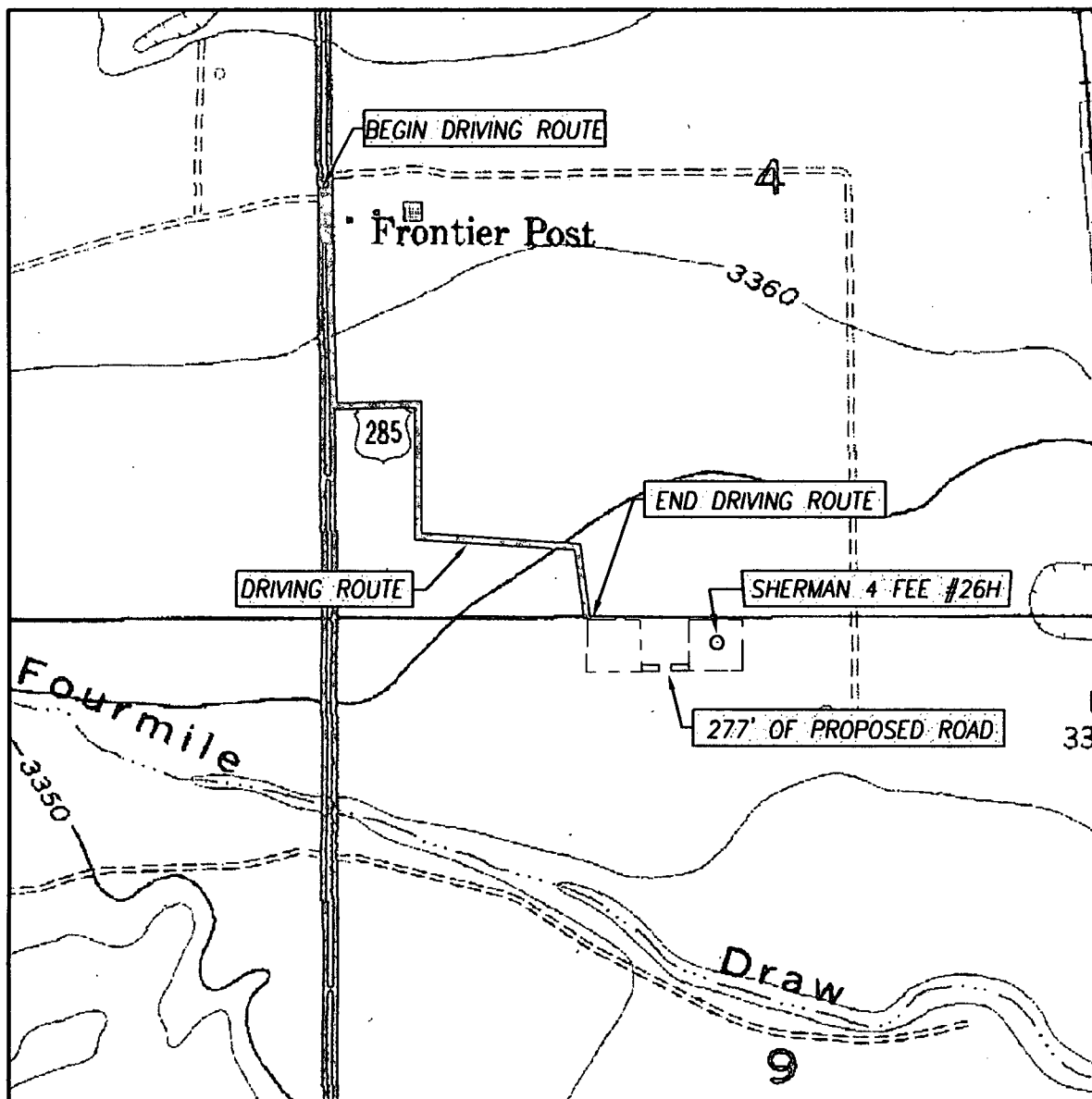


SCALE: 1" = 2 MILES
DRIVING ROUTE: SEE LOCATION VERIFICATION MAP

SEC. 9 TWP. 19-S RGE. 26-E
SURVEY N.M.P.M.
COUNTY EDDY STATE NEW MEXICO
DESCRIPTION 150' FNL & 2310' FWL
ELEVATION 3345'
OPERATOR COG OPERATING, LLC
LEASE SHERMAN 4 FEE



LOCATION VERIFICATION MAP



SCALE: 1" = 1000'

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

SEC. 9 TWP. 19-S RGE. 26-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 150' FNL & 2310' FWL

ELEVATION 3345'

OPERATOR COG OPERATING, LLC

LEASE SHERMAN 4 FEE

U.S.G.S. TOPOGRAPHIC MAP
DAYTON, N.M.

DIRECTIONS TO SHERMAN 4 FEE #26H:

FROM THE INTERSECTION OF U.S. 285 AND CO. RD. 140, GO SOUTH ON U.S. 285 APPROX. 0.2 MILES TO CALICHE LEASE ROAD. TURN LEFT AND GO EAST APPROX. 504', THEN TURN RIGHT AND GO SOUTH APPROX. 0.15 MILES, TURN LEFT AND GO EAST APPROX. 0.2 MILES, THEN TURN RIGHT AND GO SOUTH APPROX. 435', TO THE STONEWALL 9 FEE #2H FROM THE SOUTHEAST PAD CORNER FOLLOW PROPOSED ROAD SURVEY 277' EAST TO THE LOCATION.



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TBPLS# 10021000



COG Operating LLC

Eddy County, NM (NAD27 NME)

Sherman 4 Fee

#26H

WB1

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 07 2015

RECEIVED

Plan: Plan #1 12-15-14

Surface: 150' FNL, 2310' FWL, Sec 9, T19S, R26E, Unit C

PP: 330' FSL, 2260' FWL, Sec 9, T19S, R26E, Unit N

BHL: 330' FNL, 2310' FWL, Sec 9, T19S, R26E, Unit C

Standard Planning Report

15 December, 2014





Planning Report



Database:	Compass 5000 GCR	Local Co-ordinate Reference	Well #26H
Company:	COG Operating LLC	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Project:	Eddy County, NM (NAD27/NME)	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site:	Sherman 4 Fee	North Reference:	Grid
Well:	#26H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1		
Design:	Plan #1 12-15-14		

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:	Sherman 4 Fee		
Site Position:		Northing:	612,151.80 usft
From:	Map	Easting:	485,212.40 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Grid Convergence:	-0.03 °

Well:	#26H		
Well Position	+N/-S	-312.30 usft	Latitude: 32° 40' 58.42381 N
	+E/-W	-1,900.60 usft	Longitude: 104° 22' 53.02452 W
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level: 3,345.00 usft

Wellbore:	WB1		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010_14	9/4/2013	(°)
			7.72
			60.42
			48,580

Design:	Plan #1 12-15-14		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			359.13

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(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	
3,159.58	0.00	0.00	3,159.58	0.00	0.00	0.00	0.00	0.00	0.00	
3,982.31	90.50	354.00	3,680.43	522.54	-54.92	11.00	11.00	0.00	354.00	
4,199.07	90.50	0.50	3,678.54	738.93	-65.31	3.00	0.00	3.00	89.97	
8,538.38	90.50	0.50	3,640.70	5,077.90	-27.20	0.00	0.00	0.00	0.00	PBHL-Sherman 4 Fee



Planning Report



Database:	Compass 5000 GCR	Local Co-ordinate Reference	Well #26H
Company:	COG Operating LLC	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Project:	Eddy County NM (NAD27-NME)	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site:	Sherman 4 Fee	North Reference:	Grid
Well:	#26H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1		
Design:	Plan #1: 12-15-14		

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	
3,159.58	0.00	0.00	3,159.58	0.00	0.00	0.00	0.00	0.00	0.00	
KOP Begin 11°/100° Build										
3,200.00	4.45	354.00	3,199.96	1.56	-0.16	1.56	11.00	11.00	0.00	
3,300.00	15.45	354.00	3,298.31	18.71	-1.97	18.74	11.00	11.00	0.00	
3,400.00	26.45	354.00	3,391.55	54.21	-5.70	54.29	11.00	11.00	0.00	
3,500.00	37.45	354.00	3,476.28	106.75	-11.22	106.91	11.00	11.00	0.00	
3,600.00	48.45	354.00	3,549.36	174.40	-18.33	174.66	11.00	11.00	0.00	
3,700.00	59.45	354.00	3,608.13	254.68	-26.77	255.06	11.00	11.00	0.00	
3,800.00	70.45	354.00	3,650.41	344.64	-36.22	345.15	11.00	11.00	0.00	
3,900.00	81.45	354.00	3,674.66	440.97	-46.35	441.62	11.00	11.00	0.00	
3,939.50	85.79	354.00	3,679.05	480.00	-50.45	480.71	11.00	11.00	0.00	
PP Sherman 4 Fee #26H										
3,982.31	90.50	354.00	3,680.43	522.54	-54.92	523.31	11.00	11.00	0.00	
LP Begin 3°/100° Turn										
4,000.00	90.50	354.53	3,680.28	540.14	-56.69	540.94	3.00	0.00	3.00	
4,100.00	90.50	357.53	3,679.40	639.89	-63.61	640.78	3.00	0.00	3.00	
4,121.73	90.50	358.18	3,679.21	661.60	-64.42	662.51	3.00	0.00	3.00	
Hold 90.5° Inc 0.18° Azm										
4,199.07	90.50	0.50	3,678.54	738.93	-65.31	739.84	3.00	0.00	3.00	
4,200.00	90.50	0.50	3,678.53	739.86	-65.30	740.76	0.00	0.00	0.00	
4,300.00	90.50	0.50	3,677.66	839.85	-64.42	840.73	0.00	0.00	0.00	
4,400.00	90.50	0.50	3,676.79	939.84	-63.54	940.70	0.00	0.00	0.00	
4,500.00	90.50	0.50	3,675.91	1,039.83	-62.67	1,040.67	0.00	0.00	0.00	
4,600.00	90.50	0.50	3,675.04	1,139.83	-61.79	1,140.63	0.00	0.00	0.00	
4,700.00	90.50	0.50	3,674.17	1,239.82	-60.91	1,240.60	0.00	0.00	0.00	
4,800.00	90.50	0.50	3,673.30	1,339.81	-60.03	1,340.57	0.00	0.00	0.00	
4,900.00	90.50	0.50	3,672.43	1,439.80	-59.15	1,440.54	0.00	0.00	0.00	
5,000.00	90.50	0.50	3,671.55	1,539.80	-58.27	1,540.50	0.00	0.00	0.00	
5,100.00	90.50	0.50	3,670.68	1,639.79	-57.40	1,640.47	0.00	0.00	0.00	
5,200.00	90.50	0.50	3,669.81	1,739.78	-56.52	1,740.44	0.00	0.00	0.00	
5,300.00	90.50	0.50	3,668.94	1,839.77	-55.64	1,840.41	0.00	0.00	0.00	
5,400.00	90.50	0.50	3,668.07	1,939.76	-54.76	1,940.37	0.00	0.00	0.00	
5,500.00	90.50	0.50	3,667.19	2,039.76	-53.88	2,040.34	0.00	0.00	0.00	
5,600.00	90.50	0.50	3,666.32	2,139.75	-53.01	2,140.31	0.00	0.00	0.00	
5,700.00	90.50	0.50	3,665.45	2,239.74	-52.13	2,240.28	0.00	0.00	0.00	
5,800.00	90.50	0.50	3,664.58	2,339.73	-51.25	2,340.24	0.00	0.00	0.00	
5,900.00	90.50	0.50	3,663.71	2,439.73	-50.37	2,440.21	0.00	0.00	0.00	
6,000.00	90.50	0.50	3,662.83	2,539.72	-49.49	2,540.18	0.00	0.00	0.00	
6,000.23	90.50	0.50	3,662.83	2,539.95	-49.49	2,540.41	0.00	0.00	0.00	
TL 3685° TVD @ 0° VZ 90.5° Inc										
6,100.00	90.50	0.50	3,661.96	2,639.71	-48.61	2,640.15	0.00	0.00	0.00	
6,200.00	90.50	0.50	3,661.09	2,739.70	-47.74	2,740.11	0.00	0.00	0.00	
6,300.00	90.50	0.50	3,660.22	2,839.70	-46.86	2,840.08	0.00	0.00	0.00	
6,400.00	90.50	0.50	3,659.35	2,939.69	-45.98	2,940.05	0.00	0.00	0.00	
6,500.00	90.50	0.50	3,658.47	3,039.68	-45.10	3,040.02	0.00	0.00	0.00	
6,600.00	90.50	0.50	3,657.60	3,139.67	-44.22	3,139.98	0.00	0.00	0.00	
6,700.00	90.50	0.50	3,656.73	3,239.67	-43.35	3,239.95	0.00	0.00	0.00	
6,800.00	90.50	0.50	3,655.86	3,339.66	-42.47	3,339.92	0.00	0.00	0.00	
6,900.00	90.50	0.50	3,654.99	3,439.65	-41.59	3,439.88	0.00	0.00	0.00	
7,000.00	90.50	0.50	3,654.11	3,539.64	-40.71	3,539.85	0.00	0.00	0.00	
7,100.00	90.50	0.50	3,653.24	3,639.63	-39.83	3,639.82	0.00	0.00	0.00	
7,200.00	90.50	0.50	3,652.37	3,739.63	-38.95	3,739.79	0.00	0.00	0.00	



Database:	Compass 5000 GCR	Local Co-ordinate Reference:	Well #26H
Company:	COG Operating LLC	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Project:	Eddy County, NM (NAD27 NME)	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site:	Sherman 4 Fee	North Reference:	Gnd
Well:	#26H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WB1		
Design:	Plan #1 12-15-14		

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)	
7,300.00	90.50	0.50	3,651.50	3,839.62	-38.08	3,839.75	0.00	0.00	0.00	
7,400.00	90.50	0.50	3,650.63	3,939.61	-37.20	3,939.72	0.00	0.00	0.00	
7,500.00	90.50	0.50	3,649.75	4,039.60	-36.32	4,039.69	0.00	0.00	0.00	
7,600.00	90.50	0.50	3,648.88	4,139.60	-35.44	4,139.66	0.00	0.00	0.00	
7,700.00	90.50	0.50	3,648.01	4,239.59	-34.56	4,239.62	0.00	0.00	0.00	
7,800.00	90.50	0.50	3,647.14	4,339.58	-33.68	4,339.59	0.00	0.00	0.00	
7,900.00	90.50	0.50	3,646.27	4,439.57	-32.81	4,439.56	0.00	0.00	0.00	
8,000.00	90.50	0.50	3,645.39	4,539.57	-31.93	4,539.53	0.00	0.00	0.00	
8,100.00	90.50	0.50	3,644.52	4,639.56	-31.05	4,639.49	0.00	0.00	0.00	
8,200.00	90.50	0.50	3,643.65	4,739.55	-30.17	4,739.46	0.00	0.00	0.00	
8,300.00	90.50	0.50	3,642.78	4,839.54	-29.29	4,839.43	0.00	0.00	0.00	
8,400.00	90.50	0.50	3,641.91	4,939.54	-28.42	4,939.40	0.00	0.00	0.00	
8,500.00	90.50	0.50	3,641.03	5,039.53	-27.54	5,039.36	0.00	0.00	0.00	
8,536.38	90.50	0.50	3,640.72	5,075.90	-27.22	5,075.73	0.00	0.00	0.00	
TD at 8536.38' MD										
8,538.38	90.50	0.50	3,640.70	5,077.90	-27.20	5,077.73	0.00	0.00	0.00	
PBHL-Sherman 4 Fee #26H										

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
PBHL-Sherman 4 Fee #:	- plan hits target center	0.00	360.00	3,640.70	5,077.90	-27.20	616,917.40	483,284.60	32° 41' 45.57326 N	104° 23' 15.60959 W
	- Point									
PP-Sherman 4 Fee #26i	- plan hits target center	0.00	0.00	3,679.05	480.00	-50.45	612,319.50	483,261.35	32° 41' 0.07398 N	104° 23' 15.85407 W
	- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,000.23	3,662.83	TL, 3685' TVD @ 0 VZ, 90.5° Inc		-0.50	359.69	

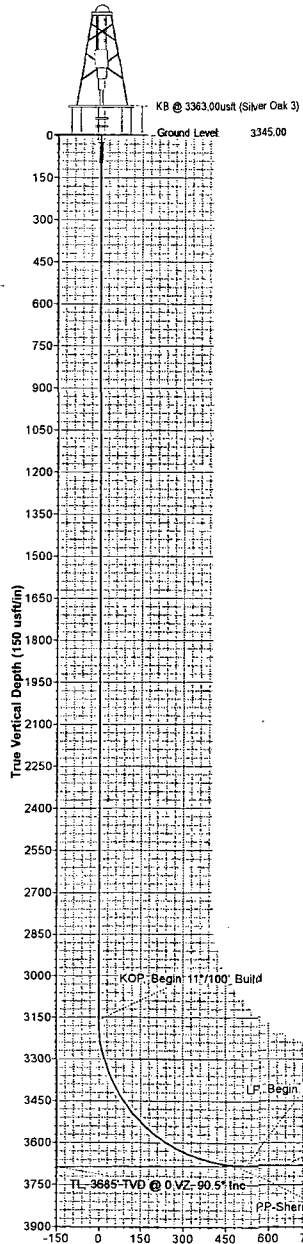
Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
3,159.58	3,159.58	0.00	0.00	KOP, Begin 11°/100' Build	
3,982.31	3,680.43	522.54	-54.92	LP, Begin 3°/100' Turn	
4,121.73	3,679.21	661.60	-64.42	Hold 90.5° Inc, 0.18° Azm	
8,536.38	3,640.72	5,075.90	-27.22	TD at 8536.38' MD	



Project: Eddy County, NM (NAD27 NME)
Site: Sherman 4 Fee
Well: #26H
Wellbore: WB1
Design: Plan #1 12-15-14
Rig: Silver Oak 3



North
M
G
T
Azimuths to Grid North
True North: 0.03°
Magnetic North: 7.75°
Magnetic Field
Strength: 48579.6nT
Dip Angle: 60.42°
Date: 9/4/2013
Model: IGRF2010_14



WELL DETAILS							
+N-S	+E-W	North	Ground Level	Easting	Latitude	Longitude	
0.00	0.00	611839.50	3345.00	483311.80	32° 40' 55.32433 N	104° 23' 15.26090 W	

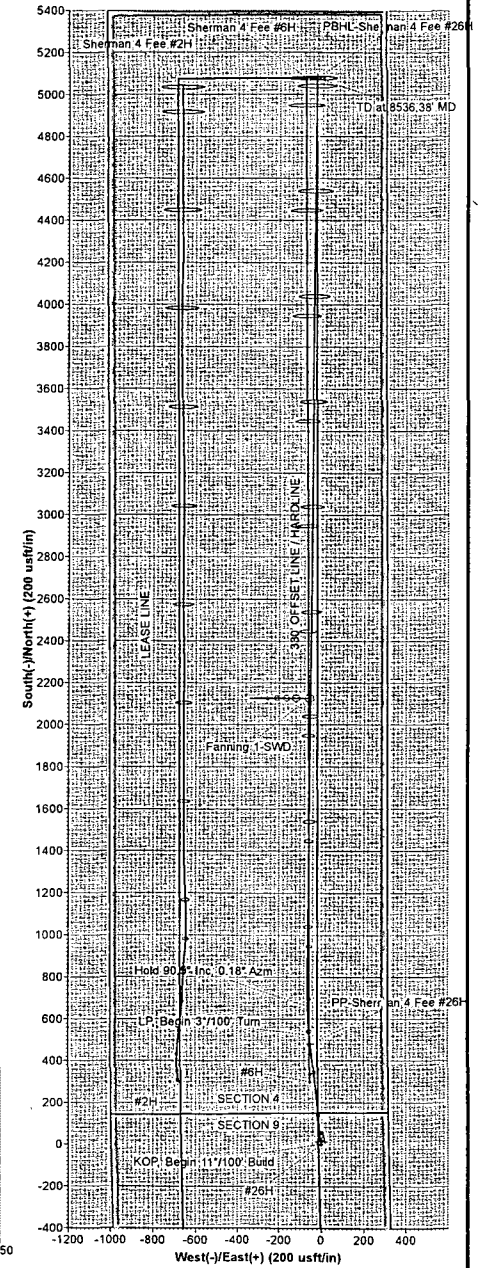
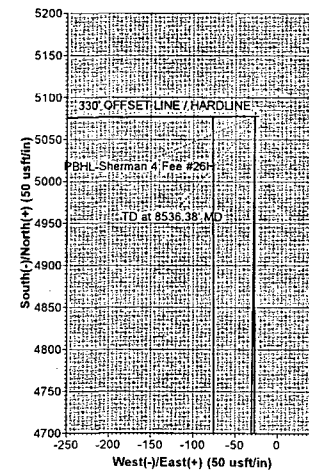
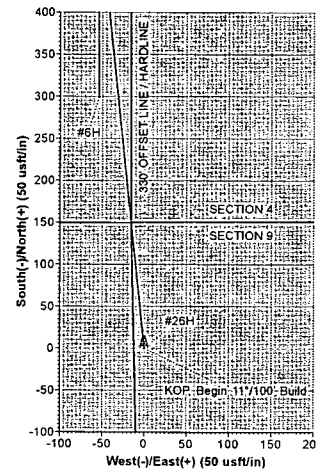
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	3159.58	0.00	0.00	3159.58	0.00	0.00	0.00	0.00	0.00	
3	3982.31	90.50	354.00	3680.43	522.54	-54.92	11.00	354.00	523.31	
4	4199.07	90.50	0.50	3678.54	738.93	-65.31	3.00	88.97	739.84	
5	8538.38	90.50	0.50	3640.70	5077.90	-27.20	0.00	0.00	5077.73	PBHL-Sherman 4 Fee #26H

DESIGN TARGET DETAILS										
Name	TVD	+N-S	+E-W	North	Easting	Latitude	Longitude	Shape		
PBHL-Sherman 4 Fee #26H	3640.70	5077.90	-27.20	616917.40	483284.60	32° 41' 45.57325 N	104° 23' 15.60959 W	Point		
PP-Sherman 4 Fee #26H	3679.05	480.00	-50.45	612319.50	483281.35	32° 41' 0.07388 N	104° 23' 15.85407 W	Point		

LEGEND	
—	#6H, WB1, Plan #1 09-04-13 V0
—	#2H, WB1/Job #1411691, Surveys (Silver Oak 3) V0
—	#3H, WB1, Plan #1 09-09-13 V0
—	1-SWD, WB1, Inc Surveys V0
—	Plan #1 12-15-14

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 #26H, Grid North
Latitude: 32° 40' 55.32433 N
Longitude: 104° 23' 15.26090 W
Grid East: 483311.80
Grid North: 611839.50
Scale Factor: 1.000
Geomagnetic Model: IGRF2010_14
Sample Date: 04-Sep-13
Magnetic Declination: 7.72°
Dip Angle from Horizontal: 60.42°
Magnetic Field Strength: 48580
To convert a Magnetic Direction to a Grid Direction, Add 7.75°
To convert a Magnetic Direction to a True Direction, Add 7.72° East
To convert a True Direction to a Grid Direction, Add 0.03°

FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	DipAngle	DipDir
3682.83	6000.23	TL 3685° TVD @ 0 VZ, 90.5° Inc	-0.50	359.69





COG Operating LLC

Eddy County, NM (NAD27 NME)

Sherman 4 Fee

#26H

WB1

Plan #1 12-15-14

NM OIL CONSERVATION

ARTESIA DISTRICT

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Anticollision Report

15 December, 2014





Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference	Well #26H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

Reference	Plan #1 12-15-14		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Circular Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 12/15/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	8,538.38	Plan #1 12-15-14 (WB1)	MWD	MWD - Standard

Summary						
Site Name	Offset Well - Wellbore - Design	Reference Measure	Offset Measure	Distance Between Centres	Distance Between Ellipses	Separation Factor
Fanning						
	1-SWD - WB1 - Inc Surveys	5,585.81	3,665.45	218.24	171.35	4.654 CC, ES
	1-SWD - WB1 - Inc Surveys	5,600.00	3,665.33	218.70	171.55	4.638 SF
Sherman 4 Fee						
	#2H - WB1/Job #1411691 - Surveys (Silver Oak 3)	0.00	3.94	731.30		
	#2H - WB1/Job #1411691 - Surveys (Silver Oak 3)	8,500.00	7,549.17	874.09	681.76	4.545 ES
	#2H - WB1/Job #1411691 - Surveys (Silver Oak 3)	8,538.38	7,565.00	875.34	681.96	4.527 SF
	#3H - WB1 - Plan #1 09-09-13	2,600.00	2,584.00	745.94	734.53	65.394 CC
	#3H - WB1 - Plan #1 09-09-13	8,538.38	7,669.37	888.42	708.27	4.932 ES, SF
	#6H - WB1 - Plan #1 09-04-13	2,552.09	2,537.09	304.45	293.25	27.198 CC, ES
	#6H - WB1 - Plan #1 09-04-13	8,538.38	7,625.03	589.49	409.20	3.270 SF

Offset Design Fanning - 1-SWD - WB1 - Inc Surveys											
Survey Program: 300 MWD											
Reference	Offset	Semi Major Axis	Distance	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)
0.00	0.00	0.00	0.00	0.00	0.00	-9.15	2,127.50	-342.80	2,154.94		
100.00	100.00	96.97	96.97	0.09	0.11	-9.15	2,127.50	-342.86	2,154.92	2,154.72	0.20
200.00	200.00	197.97	197.97	0.32	0.22	-9.14	2,127.50	-342.23	2,154.85	2,154.31	0.54
300.00	300.00	298.97	298.97	0.54	0.34	-9.12	2,127.50	-341.50	2,154.74	2,153.86	0.88
400.00	400.00	402.01	402.00	0.77	0.57	-9.08	2,127.50	-340.15	2,154.53	2,153.19	1.34
500.00	500.00	504.86	504.82	0.99	0.80	-9.02	2,127.50	-337.87	2,154.18	2,152.39	1.79
600.00	600.00	604.24	604.17	1.22	1.00	-8.96	2,127.50	-335.37	2,153.79	2,151.57	2.22
700.00	700.00	703.62	703.53	1.44	1.21	-8.90	2,127.50	-333.03	2,153.42	2,150.77	2.65
800.00	800.00	804.83	804.71	1.67	1.42	-8.83	2,127.50	-330.68	2,153.06	2,149.98	3.08
900.00	900.00	906.18	906.01	1.89	1.64	-8.76	2,127.50	-327.70	2,152.61	2,149.09	3.53
1,000.00	1,000.00	1,006.13	1,005.92	2.12	1.87	-8.68	2,127.50	-324.65	2,152.15	2,148.17	3.98
1,100.00	1,100.00	1,106.09	1,105.83	2.34	2.09	-8.60	2,127.50	-321.59	2,151.69	2,147.26	4.43
1,200.00	1,200.00	1,205.22	1,204.91	2.56	2.30	-8.52	2,127.50	-318.69	2,151.26	2,146.39	4.87
1,300.00	1,300.00	1,304.34	1,304.00	2.79	2.51	-8.45	2,127.50	-316.05	2,150.86	2,145.56	5.30
1,400.00	1,400.00	1,403.48	1,403.12	3.01	2.72	-8.39	2,127.50	-313.67	2,150.51	2,144.78	5.73
1,500.00	1,500.00	1,502.64	1,502.25	3.24	2.92	-8.33	2,127.50	-311.55	2,150.20	2,144.04	6.16

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference	Well #26H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	WB1	Database:	Compass 5000-GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

Offset Design Fanning - 1:SWD - WB1 - Inc Surveys														Offset Site Error:	0.00 usft
Survey Program 300-MWD														Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre N-S (usft)	E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
1,600.00	1,600.00	1,601.81	1,601.41	3.46	3.13	-8.28	2,127.50	-309.70	2,149.93	2,143.33	6.60	325.980			
1,700.00	1,700.00	1,701.80	1,701.38	3.69	3.34	-8.24	2,127.50	-307.95	2,149.68	2,142.65	7.03	305.830			
1,800.00	1,800.00	1,801.78	1,801.34	3.91	3.55	-8.19	2,127.50	-306.21	2,149.43	2,141.97	7.46	288.022			
1,900.00	1,900.00	1,901.77	1,901.31	4.14	3.77	-8.14	2,127.50	-304.46	2,149.18	2,141.27	7.91	271.725			
2,000.00	2,000.00	2,001.75	2,001.28	4.36	3.99	-8.10	2,127.50	-302.72	2,148.94	2,140.58	8.36	257.170			
2,100.00	2,100.00	2,101.74	2,101.25	4.59	4.22	-8.05	2,127.50	-300.97	2,148.69	2,139.89	8.80	244.092			
2,200.00	2,200.00	2,201.72	2,201.22	4.81	4.44	-8.01	2,127.50	-299.23	2,148.45	2,139.20	9.25	232.276			
2,300.00	2,300.00	2,301.71	2,301.19	5.04	4.66	-7.96	2,127.50	-297.48	2,148.20	2,138.51	9.70	221.519			
2,400.00	2,400.00	2,401.69	2,401.16	5.26	4.88	-7.91	2,127.50	-295.74	2,147.96	2,137.82	10.15	211.712			
2,500.00	2,500.00	2,501.68	2,501.13	5.49	5.11	-7.87	2,127.50	-293.99	2,147.72	2,137.13	10.59	202.720			
2,600.00	2,600.00	2,601.66	2,601.10	5.71	5.33	-7.82	2,127.50	-292.25	2,147.48	2,136.44	11.04	194.457			
2,700.00	2,700.00	2,701.65	2,701.07	5.94	5.56	-7.78	2,127.50	-290.50	2,147.25	2,135.76	11.49	186.840			
2,800.00	2,800.00	2,801.63	2,801.04	6.16	5.78	-7.73	2,127.50	-288.76	2,147.01	2,135.07	11.94	179.796			
2,900.00	2,900.00	2,902.26	2,901.65	6.39	6.01	-7.68	2,127.50	-286.92	2,146.77	2,134.37	12.39	173.216			
3,000.00	3,000.00	3,003.16	3,002.53	6.61	6.24	-7.62	2,127.50	-284.77	2,146.48	2,133.64	12.85	167.077			
3,100.00	3,100.00	3,104.04	3,103.38	6.84	6.47	-7.56	2,127.50	-282.30	2,146.16	2,132.86	13.30	161.355			
3,159.58	3,159.58	3,164.14	3,163.46	6.97	6.60	-7.52	2,127.50	-280.67	2,145.95	2,132.38	13.57	158.126			
3,200.00	3,199.96	3,204.86	3,204.16	7.06	6.69	-1.49	2,127.50	-279.50	2,144.23	2,130.47	13.76	155.886			
3,250.00	3,249.55	3,254.48	3,253.76	7.18	6.80	-1.47	2,127.50	-278.01	2,137.78	2,123.79	13.98	152.877			
3,300.00	3,298.31	3,302.23	3,301.49	7.30	6.90	-1.48	2,127.50	-276.68	2,126.62	2,112.42	14.20	149.713			
3,350.00	3,345.79	3,348.72	3,347.97	7.43	7.00	-1.50	2,127.50	-275.55	2,110.87	2,096.44	14.42	146.335			
3,400.00	3,391.55	3,393.55	3,392.78	7.55	7.09	-1.55	2,127.50	-274.60	2,090.66	2,076.02	14.64	142.783			
3,450.00	3,435.18	3,436.29	3,435.52	7.69	7.18	-1.63	2,127.50	-273.84	2,086.19	2,051.32	14.87	138.986			
3,500.00	3,476.28	3,476.56	3,475.78	7.87	7.26	-1.75	2,127.50	-273.24	2,037.67	2,022.53	15.14	134.616			
3,550.00	3,514.46	3,513.98	3,513.20	8.11	7.34	-1.91	2,127.50	-272.79	2,005.36	1,989.91	15.45	129.816			
3,600.00	3,549.36	3,548.39	3,547.61	8.39	7.41	-2.13	2,127.50	-272.47	1,969.56	1,953.76	15.81	124.615			
3,650.00	3,580.69	3,579.76	3,578.98	8.74	7.47	-2.44	2,127.50	-272.18	1,930.59	1,914.37	16.22	119.057			
3,700.00	3,608.13	3,607.24	3,606.46	9.15	7.53	-2.87	2,127.50	-271.93	1,888.79	1,872.11	16.68	113.227			
3,750.00	3,631.44	3,630.58	3,629.79	9.62	7.58	-3.51	2,127.50	-271.70	1,844.57	1,827.37	17.20	107.225			
3,800.00	3,650.41	3,649.55	3,648.76	10.16	7.62	-4.54	2,127.50	-271.51	1,798.32	1,780.54	17.78	101.162			
3,850.00	3,664.86	3,663.99	3,663.20	10.75	7.65	-8.41	2,127.50	-271.37	1,750.47	1,732.07	18.40	95.149			
3,900.00	3,674.66	3,673.76	3,672.97	11.39	7.67	-10.71	2,127.50	-271.27	1,701.47	1,682.41	19.06	89.284			
3,950.00	3,679.71	3,678.77	3,677.98	12.07	7.68	-28.92	2,127.50	-271.22	1,651.75	1,632.01	19.75	83.651			
3,982.31	3,680.43	3,679.46	3,678.67	12.52	7.68	-109.07	2,127.50	-271.21	1,619.47	1,599.27	20.20	80.162			
4,000.00	3,680.28	3,679.28	3,678.50	12.77	7.68	-104.58	2,127.50	-271.21	1,601.79	1,581.35	20.44	78.349			
4,100.00	3,679.40	3,678.33	3,677.55	14.13	7.68	-96.06	2,127.50	-271.22	1,502.03	1,480.23	21.81	68.880			
4,199.07	3,678.54	3,677.45	3,676.66	15.56	7.67	-93.73	2,127.50	-271.23	1,403.76	1,380.52	23.23	60.421			
4,300.00	3,677.66	3,676.58	3,675.79	17.10	7.67	-93.50	2,127.50	-271.24	1,304.16	1,279.38	24.77	52.645			
4,400.00	3,676.79	3,675.71	3,674.93	18.70	7.67	-93.27	2,127.50	-271.25	1,205.69	1,179.31	26.37	45.717			
4,500.00	3,675.91	3,674.85	3,674.06	20.34	7.67	-93.05	2,127.50	-271.26	1,107.49	1,079.48	28.01	39.537			
4,600.00	3,675.04	3,673.98	3,673.20	22.01	7.67	-92.82	2,127.50	-271.27	1,009.65	979.97	29.68	34.018			
4,700.00	3,674.17	3,673.12	3,672.33	23.71	7.67	-92.59	2,127.50	-271.27	912.27	880.90	31.37	29.079			
4,800.00	3,673.30	3,672.25	3,671.47	25.42	7.66	-92.37	2,127.50	-271.28	815.53	782.45	33.08	24.651			
4,900.00	3,672.43	3,671.39	3,670.60	27.15	7.66	-92.14	2,127.50	-271.29	719.68	684.87	34.81	20.675			
5,000.00	3,671.55	3,670.52	3,669.74	28.89	7.66	-91.91	2,127.50	-271.30	625.13	588.58	36.55	17.104			
5,100.00	3,670.68	3,669.66	3,668.87	30.64	7.66	-91.69	2,127.50	-271.31	532.57	494.27	38.30	13.906			
5,200.00	3,669.81	3,668.79	3,668.01	32.40	7.66	-91.46	2,127.50	-271.32	443.25	403.20	40.05	11.066			
5,300.00	3,668.94	3,667.93	3,667.14	34.17	7.65	-91.23	2,127.50	-271.33	359.60	317.78	41.82	8.599			
5,400.00	3,668.07	3,667.06	3,666.28	35.94	7.65	-91.01	2,127.50	-271.34	286.63	243.03	43.59	6.575			
5,500.00	3,667.19	3,666.20	3,665.41	37.72	7.65	-90.78	2,127.50	-271.35	234.51	189.14	45.37	5.169			
5,585.81	3,666.45	3,665.45	3,664.67	39.25	7.65	-90.58	2,127.50	-271.35	218.24	171.35	46.90	4.654 CC, ES			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well: #26H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB: @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

Offset Design Fanning - 1-SWD - WB1 - Inc Surveys														Offset Site Error:
Survey Program: 300-MWD														Offset Well Error:
Reference	Offset	Semi Major Axis		Reference	Offset	Highside	Offset Wellbore Centre		Distance		Minimum	Separation	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	N-S (usft)	E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor		
5,600.00	3,666.32	3,665.33	3,664.55	39.50	7.65	-90.55	2,127.50	-271.35	218.70	171.55	47.15	4.638	SF	
5,700.00	3,665.45	3,664.47	3,663.68	41.29	7.65	-90.32	2,127.50	-271.36	246.31	197.37	48.94	5.033		
5,800.00	3,664.58	3,663.60	3,662.81	43.08	7.65	-90.10	2,127.50	-271.37	305.78	255.06	50.73	6.028		
5,900.00	3,663.71	3,662.74	3,661.95	44.87	7.64	-89.87	2,127.50	-271.38	382.54	330.02	52.52	7.284		
6,000.00	3,662.83	3,661.87	3,661.08	46.67	7.64	-89.64	2,127.50	-271.39	468.15	413.84	54.31	8.620		
6,100.00	3,661.96	3,661.00	3,660.22	48.47	7.64	-89.42	2,127.50	-271.40	558.57	502.46	56.11	9.955		
6,200.00	3,661.09	3,660.14	3,659.35	50.27	7.64	-89.19	2,127.50	-271.41	651.79	593.88	57.91	11.255		
6,300.00	3,660.22	3,659.27	3,658.49	52.07	7.64	-88.96	2,127.50	-271.42	746.76	687.05	59.71	12.506		
6,400.00	3,659.35	3,658.41	3,657.62	53.88	7.64	-88.73	2,127.50	-271.42	842.90	781.38	61.52	13.702		
6,500.00	3,658.47	3,657.54	3,656.76	55.69	7.63	-88.51	2,127.50	-271.43	939.84	876.52	63.32	14.843		
6,600.00	3,657.60	3,656.68	3,655.89	57.50	7.63	-88.28	2,127.50	-271.44	1,037.37	972.24	65.13	15.928		
6,700.00	3,656.73	3,655.81	3,655.03	59.30	7.63	-88.05	2,127.50	-271.45	1,135.32	1,068.38	66.93	16.962		
6,800.00	3,655.86	3,654.95	3,654.16	61.12	7.63	-87.83	2,127.50	-271.46	1,233.60	1,164.86	68.74	17.945		
6,900.00	3,654.99	3,654.08	3,653.30	62.93	7.63	-87.60	2,127.50	-271.47	1,332.14	1,261.58	70.55	18.881		
7,000.00	3,654.11	3,653.22	3,652.43	64.74	7.62	-87.37	2,127.50	-271.48	1,430.88	1,358.51	72.37	19.773		
7,100.00	3,653.24	3,652.35	3,651.57	66.55	7.62	-87.15	2,127.50	-271.49	1,529.78	1,455.60	74.18	20.623		
7,200.00	3,652.37	3,651.49	3,650.70	68.37	7.62	-86.92	2,127.50	-271.49	1,628.81	1,552.82	75.99	21.434		
7,300.00	3,651.50	3,650.62	3,649.84	70.18	7.62	-86.70	2,127.50	-271.50	1,727.96	1,650.16	77.80	22.209		
7,400.00	3,650.63	3,649.75	3,648.97	72.00	7.62	-86.47	2,127.50	-271.51	1,827.20	1,747.58	79.62	22.949		
7,500.00	3,649.75	3,648.89	3,648.10	73.82	7.62	-86.24	2,127.50	-271.52	1,926.52	1,845.08	81.43	23.657		
7,600.00	3,648.88	3,648.02	3,647.24	75.64	7.61	-86.02	2,127.50	-271.53	2,025.90	1,942.65	83.25	24.335		
7,700.00	3,648.01	3,647.16	3,646.37	77.45	7.61	-85.79	2,127.50	-271.54	2,125.34	2,040.28	85.07	24.985		
7,800.00	3,647.14	3,646.29	3,645.51	79.27	7.61	-85.57	2,127.50	-271.55	2,224.83	2,137.95	86.88	25.607		
7,900.00	3,646.27	3,645.43	3,644.64	81.09	7.61	-85.34	2,127.50	-271.55	2,324.37	2,235.67	88.70	26.205		
8,000.00	3,645.39	3,644.56	3,643.78	82.91	7.61	-85.12	2,127.50	-271.56	2,423.94	2,333.42	90.52	26.778		
8,100.00	3,644.52	3,643.70	3,642.91	84.73	7.61	-84.89	2,127.50	-271.57	2,523.55	2,431.21	92.34	27.330		
8,200.00	3,643.65	3,642.83	3,642.05	86.55	7.60	-84.67	2,127.50	-271.58	2,623.18	2,529.03	94.16	27.860		
8,300.00	3,642.78	3,641.96	3,641.18	88.37	7.60	-84.44	2,127.50	-271.59	2,722.85	2,626.87	95.97	28.371		
8,400.00	3,641.91	3,641.10	3,640.31	90.19	7.60	-84.22	2,127.50	-271.60	2,822.53	2,724.74	97.79	28.862		
8,500.00	3,641.03	3,640.23	3,639.45	92.02	7.60	-83.99	2,127.50	-271.61	2,922.24	2,822.62	99.61	29.336		
8,538.38	3,640.70	3,639.90	3,639.12	92.71	7.60	-83.91	2,127.50	-271.61	2,960.51	2,860.19	100.31	29.513		



Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #26H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

Offset Design Sherman 4 Fee - #2H - WB1/Job #1411691 - Surveys (Silver Oak 3)												Offset Site Error:
Survey Program: 100-NS-GYRO-MS12431-PHX-MWD-IGRF												0.00 usft
Reference	Offset	Semi Major Axis		Reference		Highside	Offset Wellbore Centre		Distances		Minimum	Separation
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor
0.00	0.00	3.94	3.94	0.00	0.00	-66.16	295.60	-668.90	731.30			
100.00	100.00	102.47	102.47	0.09	0.12	-66.16	295.61	-669.01	731.41	731.20	0.21	3,523.585
200.00	200.00	200.00	200.00	0.32	0.37	-66.17	295.64	-669.42	731.81	731.12	0.69	1,058.782
300.00	300.00	300.00	299.99	0.54	0.62	-66.23	295.13	-670.25	732.36	731.20	1.16	631.234
400.00	400.00	395.30	395.29	0.77	0.86	-66.32	294.48	-671.43	733.22	731.59	1.62	451.392
500.00	500.00	487.20	487.17	0.99	1.09	-66.35	294.80	-673.02	734.95	732.87	2.08	353.657
600.00	600.00	587.68	587.62	1.22	1.32	-66.31	296.13	-675.00	737.29	734.75	2.54	290.385
700.00	700.00	692.56	692.47	1.44	1.55	-66.24	297.84	-676.45	739.20	736.21	2.99	246.962
800.00	800.00	791.84	791.74	1.67	1.78	-66.17	299.31	-677.51	740.78	737.33	3.45	214.950
900.00	900.00	895.95	895.83	1.89	2.03	-66.11	300.54	-678.56	742.19	738.27	3.92	189.459
1,000.00	1,000.00	996.34	996.22	2.12	2.26	-66.04	301.76	-679.19	743.25	738.87	4.38	169.881
1,100.00	1,100.00	1,097.04	1,096.91	2.34	2.51	-66.01	302.60	-679.92	744.25	739.40	4.85	153.354
1,200.00	1,200.00	1,197.39	1,197.25	2.56	2.77	-65.99	303.21	-680.67	745.18	739.84	5.34	139.566
1,300.00	1,300.00	1,298.50	1,298.36	2.79	3.03	-65.99	303.59	-681.42	746.01	740.19	5.82	128.172
1,400.00	1,400.00	1,401.59	1,401.45	3.01	3.29	-66.00	303.60	-682.03	746.56	740.25	6.30	118.426
1,500.00	1,500.00	1,500.51	1,500.37	3.24	3.54	-66.02	303.56	-682.50	746.97	740.20	6.77	110.270
1,600.00	1,600.00	1,602.14	1,601.99	3.46	3.76	-66.02	303.76	-682.83	747.35	740.12	7.23	103.404
1,700.00	1,700.00	1,702.32	1,702.18	3.69	3.98	-65.99	304.16	-682.93	747.60	739.94	7.67	97.512
1,800.00	1,800.00	1,802.55	1,802.40	3.91	4.19	-65.97	304.58	-683.00	747.83	739.73	8.10	92.274
1,900.00	1,900.00	1,902.59	1,902.45	4.14	4.41	-65.94	304.96	-683.05	748.04	739.49	8.55	87.522
2,000.00	2,000.00	2,001.75	2,001.60	4.36	4.65	-65.93	305.23	-683.22	748.30	739.29	9.02	82.998
2,100.00	2,100.00	2,100.00	2,099.85	4.59	4.91	-65.91	305.56	-683.54	748.74	739.24	9.50	78.831
2,200.00	2,200.00	2,203.12	2,202.97	4.81	5.18	-65.90	305.83	-683.80	749.08	739.09	9.99	74.958
2,300.00	2,300.00	2,303.20	2,303.05	5.04	5.44	-65.90	305.88	-683.92	749.21	738.73	10.48	71.504
2,400.00	2,400.00	2,402.29	2,402.15	5.26	5.69	-65.91	305.94	-684.14	749.43	738.49	10.95	68.460
2,500.00	2,500.00	2,500.34	2,500.20	5.49	5.73	-65.91	305.98	-684.23	749.54	738.32	11.22	66.821
2,600.00	2,600.00	2,585.11	2,584.81	5.71	5.75	-65.64	309.90	-684.50	752.41	740.94	11.46	65.634
2,700.00	2,700.00	2,629.69	2,628.57	5.94	5.79	-64.96	320.04	-685.02	759.85	748.12	11.73	64.787
2,800.00	2,800.00	2,691.31	2,688.14	6.16	5.85	-63.92	335.68	-685.87	772.35	760.34	12.01	64.314
2,900.00	2,900.00	2,742.00	2,735.76	6.39	5.91	-62.80	352.98	-686.68	790.21	777.91	12.30	64.248
3,000.00	3,000.00	2,805.00	2,792.40	6.61	6.07	-61.04	380.46	-687.53	813.77	801.08	12.68	64.155
3,100.00	3,100.00	2,854.73	2,834.73	6.84	6.27	-59.40	406.53	-687.33	842.73	829.62	13.11	64.306
3,159.58	3,159.58	2,882.73	2,857.33	6.97	6.41	-58.37	423.04	-686.84	862.84	849.46	13.38	64.489
3,200.00	3,199.96	2,898.00	2,869.29	7.06	6.49	-50.54	432.53	-686.43	876.76	863.20	13.55	64.683
3,250.00	3,249.55	2,929.00	2,892.72	7.18	6.69	-48.12	452.79	-685.26	892.57	878.70	13.87	64.337
3,300.00	3,298.31	2,953.02	2,910.06	7.30	6.87	-46.20	469.36	-683.99	906.69	892.52	14.18	63.960
3,350.00	3,345.79	2,978.86	2,927.87	7.43	7.09	-44.50	487.99	-682.25	918.96	904.44	14.51	63.316
3,400.00	3,391.55	3,004.65	2,944.78	7.55	7.32	-43.05	507.35	-680.17	929.22	914.35	14.87	62.476
3,450.00	3,435.18	3,023.00	2,956.33	7.69	7.50	-42.00	521.52	-678.56	937.43	922.25	15.19	61.731
3,500.00	3,476.28	3,054.00	2,974.81	7.87	7.83	-40.92	546.25	-675.77	943.55	927.84	15.70	60.085
3,550.00	3,514.46	3,070.17	2,983.90	8.11	8.02	-40.34	559.55	-674.36	947.66	931.53	16.13	58.766
3,600.00	3,549.36	3,085.00	2,991.90	8.39	8.19	-39.95	571.98	-673.16	949.79	933.21	16.59	57.265
3,650.00	3,580.69	3,116.00	3,007.61	8.74	8.58	-39.55	598.59	-670.79	949.73	932.41	17.33	54.817
3,700.00	3,608.13	3,132.94	3,015.58	9.15	8.82	-39.53	613.49	-669.55	947.51	929.54	17.97	52.739
3,750.00	3,631.44	3,147.00	3,021.82	9.62	9.01	-39.70	626.05	-668.55	943.24	924.60	18.63	50.626
3,800.00	3,650.41	3,178.00	3,034.26	10.16	9.46	-39.95	654.36	-666.43	936.84	917.22	19.62	47.755
3,850.00	3,664.86	3,193.35	3,039.75	10.75	9.69	-40.50	668.65	-665.40	928.32	907.88	20.44	45.407
3,900.00	3,674.66	3,209.00	3,044.96	11.39	9.93	-41.24	683.37	-664.37	917.76	896.44	21.32	43.037
3,950.00	3,679.71	3,240.00	3,054.25	12.07	10.43	-42.23	712.88	-662.49	904.96	882.46	22.50	40.218
3,982.31	3,680.43	3,252.15	3,057.52	12.52	10.64	-43.00	724.57	-661.82	895.63	872.47	23.16	38.672
4,000.00	3,680.28	3,259.50	3,059.37	12.77	10.76	-43.15	731.66	-661.43	890.45	866.92	23.52	37.852

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #26H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

Offset Design Sherman 4 Fee - #2H - WB1 / Job #1411691 - Surveys (Silver Oak 3)													Offset Site Error:
Survey Program: 100-NS-GYRO-MS/2431-PHX-MWD-IGRF													0.00 usft
Reference													Offset Well Error:
Semi Major Axis													0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,100.00	3,679.40	3,310.35	3,070.03	14.13	11.63	-43.89	781.32	-658.89	866.37	840.61	25.76	33.630	
4,199.07	3,678.54	3,365.00	3,077.69	15.56	12.61	-44.39	835.32	-655.73	850.72	822.55	28.17	30.203	
4,300.00	3,677.66	3,426.57	3,081.05	17.10	13.74	-44.39	896.62	-651.36	841.69	810.85	30.84	27.289	
4,400.00	3,676.79	3,502.49	3,082.01	18.70	15.18	-44.22	972.33	-645.79	835.82	801.94	33.88	24.669	
4,482.82	3,676.06	3,552.75	3,081.05	20.06	16.15	-44.11	1,022.53	-643.52	834.29	798.08	36.21	23.040	
4,500.00	3,675.91	3,564.29	3,080.78	20.34	16.37	-44.09	1,034.06	-643.30	834.35	797.63	36.72	22.724	
4,600.00	3,675.04	3,638.96	3,079.28	22.01	17.85	-44.15	1,108.70	-644.56	836.85	798.99	39.86	20.994	
4,700.00	3,674.17	3,738.17	3,077.23	23.71	19.84	-44.31	1,207.82	-648.10	840.81	797.26	43.55	19.307	
4,800.00	3,673.30	3,847.88	3,076.15	25.42	22.08	-44.54	1,317.45	-652.11	844.07	796.57	47.50	17.771	
4,900.00	3,672.43	3,964.81	3,076.07	27.15	24.48	-44.77	1,434.34	-654.94	845.83	794.20	51.63	16.383	
5,000.00	3,671.55	4,064.29	3,076.21	28.89	26.54	-44.91	1,533.83	-655.83	846.36	790.93	55.43	15.270	
5,100.00	3,670.68	4,167.00	3,075.95	30.64	28.67	-45.01	1,636.53	-656.40	846.93	787.63	59.31	14.280	
5,200.00	3,669.81	4,261.00	3,075.21	32.40	30.63	-45.06	1,730.52	-656.64	847.68	784.65	63.03	13.450	
5,300.00	3,668.94	4,373.42	3,075.29	34.17	32.98	-45.17	1,842.94	-656.93	847.78	780.64	67.14	12.627	
5,330.89	3,668.67	4,401.21	3,075.43	34.71	33.56	-45.21	1,870.73	-656.99	847.73	779.45	68.27	12.417	
5,400.00	3,668.07	4,464.17	3,075.28	35.94	34.88	-45.26	1,933.69	-657.18	848.00	777.18	70.82	11.975	
5,500.00	3,667.19	4,560.67	3,073.88	37.72	36.90	-45.28	2,030.18	-657.18	849.02	774.40	74.62	11.378	
5,600.00	3,666.32	4,663.70	3,072.16	39.50	39.07	-45.26	2,133.19	-656.75	849.91	771.34	78.57	10.818	
5,700.00	3,665.45	4,760.52	3,070.63	41.29	41.10	-45.25	2,230.00	-656.43	850.80	768.41	82.39	10.326	
5,800.00	3,664.58	4,854.85	3,069.09	43.08	43.09	-45.28	2,324.31	-656.94	852.35	766.17	86.17	9.891	
5,900.00	3,663.71	4,958.92	3,068.37	44.87	45.30	-45.42	2,428.37	-658.87	854.17	763.99	90.17	9.473	
6,000.00	3,662.83	5,069.26	3,068.62	46.67	47.64	-45.58	2,538.69	-660.05	854.77	760.47	94.31	9.064	
6,100.00	3,661.96	5,172.87	3,068.94	48.47	49.83	-45.89	2,642.30	-660.16	854.65	756.35	98.30	8.695	
6,182.06	3,661.25	5,252.50	3,068.92	49.95	51.51	-45.74	2,721.94	-659.87	854.47	753.01	101.46	8.422	
6,200.00	3,661.09	5,269.51	3,068.83	50.27	51.87	-45.75	2,738.94	-659.79	854.48	752.34	102.14	8.366	
6,300.00	3,660.22	5,366.68	3,067.75	52.07	53.92	-45.74	2,836.11	-659.13	854.79	748.79	106.00	8.064	
6,400.00	3,659.35	5,461.24	3,065.70	53.88	55.92	-45.67	2,930.64	-658.05	855.51	745.71	109.80	7.792	
6,500.00	3,658.47	5,556.52	3,062.67	55.69	57.93	-45.55	3,025.87	-656.89	856.88	743.26	113.62	7.542	
6,600.00	3,657.60	5,649.88	3,059.48	57.50	59.90	-45.45	3,118.97	-656.34	858.88	741.48	117.40	7.316	
6,700.00	3,656.73	5,752.95	3,056.73	59.30	62.10	-45.44	3,222.19	-657.02	861.23	739.83	121.40	7.094	
6,800.00	3,655.86	5,866.17	3,056.84	61.12	64.51	-45.63	3,335.39	-658.99	862.40	736.78	125.62	6.865	
6,900.00	3,654.99	5,960.27	3,057.29	62.93	66.51	-45.80	3,429.47	-660.63	863.33	733.89	129.44	6.670	
7,000.00	3,654.11	6,064.92	3,057.64	64.74	68.74	-45.98	3,534.12	-662.21	864.21	730.73	133.49	6.474	
7,100.00	3,653.24	6,161.70	3,057.99	66.55	70.81	-46.13	3,630.89	-663.47	864.93	727.57	137.36	6.297	
7,200.00	3,652.37	6,253.11	3,057.52	68.37	72.76	-46.26	3,722.28	-665.14	866.62	725.49	141.13	6.141	
7,300.00	3,651.50	6,358.85	3,056.58	70.18	75.01	-46.38	3,828.00	-666.73	868.36	723.16	145.20	5.981	
7,400.00	3,650.63	6,477.01	3,055.69	72.00	77.52	-46.43	3,946.15	-668.83	869.02	719.50	149.52	5.812	
7,500.00	3,649.75	6,584.90	3,056.18	73.82	79.81	-46.46	4,054.03	-664.98	867.48	713.86	153.62	5.647	
7,600.00	3,648.88	6,677.54	3,055.93	75.64	81.76	-46.44	4,146.65	-663.05	866.20	708.80	157.40	5.503	
7,671.19	3,648.26	6,741.99	3,055.10	76.93	83.13	-46.40	4,211.08	-661.88	865.92	705.86	160.06	5.410	
7,700.00	3,648.01	6,768.02	3,054.79	77.45	83.68	-46.39	4,237.10	-661.63	865.97	704.83	161.13	5.374	
7,800.00	3,647.14	6,865.81	3,054.20	79.27	85.76	-46.45	4,334.90	-661.79	866.53	701.50	165.03	5.251	
7,900.00	3,646.27	6,957.19	3,054.22	81.09	87.71	-46.58	4,426.27	-662.97	867.50	698.70	168.80	5.139	
8,000.00	3,645.39	7,062.96	3,053.42	82.91	89.97	-46.69	4,532.03	-664.30	868.99	696.11	172.88	5.027	
8,100.00	3,644.52	7,172.29	3,053.12	84.73	92.29	-46.77	4,641.35	-664.42	869.29	692.26	177.02	4.911	
8,119.99	3,644.35	7,190.85	3,053.05	85.10	92.69	-46.78	4,659.92	-664.32	869.27	691.49	177.78	4.890	
8,200.00	3,643.65	7,265.26	3,052.23	86.55	94.27	-46.78	4,734.31	-663.84	869.53	688.72	180.82	4.809	
8,300.00	3,642.78	7,359.94	3,050.75	88.37	96.28	-46.77	4,828.98	-663.65	870.50	685.85	184.65	4.714	
8,400.00	3,641.91	7,456.96	3,049.70	90.19	98.35	-46.84	4,925.99	-664.40	871.85	683.31	188.54	4.624	
8,500.00	3,641.03	7,549.17	3,047.92	92.02	100.32	-46.88	5,018.18	-665.53	874.09	681.76	192.33	4.545 ES	
8,538.38	3,640.70	7,565.00	3,047.56	92.71	100.66	-46.88	5,034.00	-665.72	875.34	681.96	193.37	4.527 SF	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #26H
Project:	Eddy County - NM (NAD27 NME)	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 - 12-15-14	Offset TVD Reference:	Offset Datum



Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #26H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	WB1	Database:	Compass:5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD/Reference:	Offset Datum

Offset Design Sherman 4 Fee - #3H - WB1 - Plan #1 09-09-13													Offset Site Error:
Survey Program: 0-MWD													Offset Well Error:
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	65.92	304.40	681.00	746.11				
100.00	100.00	84.00	84.00	0.09	0.09	65.92	304.40	681.00	745.94	745.75	0.19	3,997.772	
200.00	200.00	184.00	184.00	0.32	0.30	65.92	304.40	681.00	745.94	745.32	0.62	1,206.808	
300.00	300.00	284.00	284.00	0.54	0.53	65.92	304.40	681.00	745.94	744.87	1.07	698.678	
400.00	400.00	384.00	384.00	0.77	0.75	65.92	304.40	681.00	745.94	744.42	1.52	491.662	
500.00	500.00	484.00	484.00	0.99	0.98	65.92	304.40	681.00	745.94	743.97	1.97	379.282	
600.00	600.00	584.00	584.00	1.22	1.20	65.92	304.40	681.00	745.94	743.52	2.42	308.718	
700.00	700.00	684.00	684.00	1.44	1.43	65.92	304.40	681.00	745.94	743.07	2.87	260.292	
800.00	800.00	784.00	784.00	1.67	1.65	65.92	304.40	681.00	745.94	742.62	3.32	224.998	
900.00	900.00	884.00	884.00	1.89	1.87	65.92	304.40	681.00	745.94	742.17	3.76	198.133	
1,000.00	1,000.00	984.00	984.00	2.12	2.10	65.92	304.40	681.00	745.94	741.72	4.21	176.998	
1,100.00	1,100.00	1,084.00	1,084.00	2.34	2.32	65.92	304.40	681.00	745.94	741.27	4.66	159.938	
1,200.00	1,200.00	1,184.00	1,184.00	2.56	2.55	65.92	304.40	681.00	745.94	740.82	5.11	145.878	
1,300.00	1,300.00	1,284.00	1,284.00	2.79	2.77	65.92	304.40	681.00	745.94	740.37	5.56	134.090	
1,400.00	1,400.00	1,384.00	1,384.00	3.01	3.00	65.92	304.40	681.00	745.94	739.92	6.01	124.064	
1,500.00	1,500.00	1,484.00	1,484.00	3.24	3.22	65.92	304.40	681.00	745.94	739.47	6.46	115.434	
1,600.00	1,600.00	1,584.00	1,584.00	3.46	3.45	65.92	304.40	681.00	745.94	739.02	6.91	107.926	
1,700.00	1,700.00	1,684.00	1,684.00	3.69	3.67	65.92	304.40	681.00	745.94	738.57	7.36	101.335	
1,800.00	1,800.00	1,784.00	1,784.00	3.91	3.90	65.92	304.40	681.00	745.94	738.13	7.81	95.503	
1,900.00	1,900.00	1,884.00	1,884.00	4.14	4.12	65.92	304.40	681.00	745.94	737.68	8.26	90.305	
2,000.00	2,000.00	1,984.00	1,984.00	4.36	4.35	65.92	304.40	681.00	745.94	737.23	8.71	85.644	
2,100.00	2,100.00	2,084.00	2,084.00	4.59	4.57	65.92	304.40	681.00	745.94	736.78	9.16	81.441	
2,200.00	2,200.00	2,184.00	2,184.00	4.81	4.80	65.92	304.40	681.00	745.94	736.33	9.61	77.631	
2,300.00	2,300.00	2,284.00	2,284.00	5.04	5.02	65.92	304.40	681.00	745.94	735.88	10.06	74.161	
2,400.00	2,400.00	2,384.00	2,384.00	5.26	5.25	65.92	304.40	681.00	745.94	735.43	10.51	70.989	
2,500.00	2,500.00	2,484.00	2,484.00	5.49	5.47	65.92	304.40	681.00	745.94	734.98	10.96	68.076	
2,600.00	2,600.00	2,584.00	2,584.00	5.71	5.70	65.92	304.40	681.00	745.94	734.53	11.41	65.394 CC	
2,700.00	2,700.00	2,650.00	2,649.94	5.94	5.85	65.77	306.53	681.00	747.58	735.80	11.78	63.454	
2,800.00	2,800.00	2,715.44	2,714.57	6.16	6.01	65.07	316.51	681.00	754.16	741.99	12.17	61.985	
2,900.00	2,900.00	2,773.93	2,770.88	6.39	6.16	63.99	332.23	680.99	766.11	753.57	12.54	61.090	
3,000.00	3,000.00	2,828.28	2,821.31	6.61	6.30	62.84	352.40	680.99	783.84	770.93	12.91	60.732	
3,100.00	3,100.00	2,877.87	2,865.27	6.84	6.43	61.14	375.30	680.98	807.73	794.47	13.26	60.904	
3,159.58	3,159.58	2,900.00	2,884.15	6.97	6.50	60.40	386.85	680.98	825.04	811.57	13.47	61.248	
3,200.00	3,199.96	2,922.95	2,903.19	7.06	6.60	64.33	399.67	680.98	837.42	823.76	13.66	61.304	
3,250.00	3,249.55	2,950.00	2,924.88	7.18	6.71	62.02	415.83	680.97	852.42	838.52	13.89	61.352	
3,300.00	3,298.31	2,967.59	2,938.52	7.30	6.81	60.16	426.93	680.97	866.74	852.63	14.11	61.428	
3,350.00	3,345.79	3,000.00	2,962.64	7.43	6.98	58.18	448.57	680.96	880.40	865.99	14.41	61.113	
3,400.00	3,391.55	3,000.00	2,962.64	7.55	6.98	56.97	448.57	680.96	893.04	878.51	14.53	61.457	
3,450.00	3,435.18	3,035.19	2,987.25	7.69	7.21	55.42	473.72	680.96	904.32	889.43	14.90	60.711	
3,500.00	3,476.28	3,050.00	2,997.09	7.87	7.30	54.32	484.78	680.95	914.64	899.46	15.18	60.254	
3,550.00	3,514.46	3,080.52	3,016.35	8.11	7.54	53.30	508.45	680.95	923.48	907.83	15.65	59.004	
3,600.00	3,549.36	3,100.00	3,027.91	8.39	7.69	52.56	524.13	680.94	931.01	914.92	16.09	57.864	
3,650.00	3,580.69	3,125.93	3,042.37	8.74	7.93	52.00	545.66	680.94	937.06	920.38	16.67	56.203	
3,700.00	3,608.13	3,150.00	3,054.81	9.15	8.15	51.65	566.25	680.93	941.61	924.31	17.30	54.422	
3,750.00	3,631.44	3,171.36	3,065.05	9.62	8.37	51.48	584.99	680.93	944.63	926.63	18.00	52.485	
3,800.00	3,650.41	3,200.00	3,077.56	10.16	8.67	51.56	610.76	680.92	946.15	927.32	18.83	50.243	
3,850.00	3,664.86	3,216.71	3,084.19	10.75	8.87	51.73	626.09	680.92	946.06	926.45	19.62	48.228	
3,900.00	3,674.66	3,250.00	3,095.93	11.39	9.25	52.27	657.24	680.91	944.64	923.99	20.64	45.761	
3,950.00	3,679.71	3,250.00	3,095.93	12.07	9.25	52.53	657.24	680.91	941.64	920.32	21.32	44.164	
3,982.31	3,680.43	3,276.47	3,103.83	12.52	9.59	53.20	682.50	680.91	938.78	916.66	22.11	42.455	
4,000.00	3,680.28	3,284.48	3,105.97	12.77	9.69	53.32	690.22	680.90	937.16	914.71	22.46	41.734	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well #26H
Project:	Eddy County NM (NAD27 NME)	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0:00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0:00 usft	Output errors are at	2:00 sigma
Reference Wellbore:	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

Offset Design Sherman 4 Fee - #3H - WB1 - Plan #1 09-09-13														Offset Site Error:	0.00 usft
Survey Program: 0-MWD														Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Distance		Minimum		Separation		Warning					
Measured	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre	Between	Between	Minimum	Separation	Factor	Warning		
Depth	Depth	Depth	Depth	Depth	Depth	Footface	+N-S	+E-W	Centres	Ellipses	Separation	Factor	Warning		
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(ft)	(usft)	(usft)	(usft)	(usft)	(usft)				
4,100.00	3,679.40	3,331.04	3,116.02	14.13	10.31	53.83	735.67	680.89	929.03	904.59	24.44	38.017			
4,199.07	3,678.54	3,378.84	3,122.07	15.56	10.97	54.09	783.06	680.88	922.42	895.88	26.53	34.765			
4,300.00	3,677.66	3,431.16	3,123.71	17.10	11.73	54.18	835.34	680.87	919.16	890.33	28.83	31.877			
4,400.00	3,676.79	3,531.16	3,122.84	18.70	13.27	54.15	935.33	680.84	918.43	886.46	31.97	28.730			
4,500.00	3,675.91	3,631.15	3,121.97	20.34	14.86	54.11	1,035.33	680.82	917.70	882.50	35.20	26.071			
4,600.00	3,675.04	3,731.15	3,121.09	22.01	16.50	54.08	1,135.32	680.79	916.97	878.45	38.51	23.809			
4,700.00	3,674.17	3,831.15	3,120.22	23.71	18.18	54.05	1,235.31	680.77	916.24	874.35	41.89	21.874			
4,800.00	3,673.30	3,931.14	3,119.35	25.42	19.89	54.02	1,335.30	680.74	915.51	870.20	45.31	20.207			
4,900.00	3,672.43	4,031.14	3,118.48	27.15	21.62	53.98	1,435.29	680.72	914.78	866.01	48.76	18.760			
5,000.00	3,671.55	4,131.13	3,117.60	28.89	23.36	53.95	1,535.29	680.69	914.05	861.80	52.25	17.495			
5,100.00	3,670.68	4,231.13	3,116.73	30.64	25.11	53.92	1,635.28	680.67	913.32	857.56	55.75	16.381			
5,200.00	3,669.81	4,331.13	3,115.86	32.40	26.88	53.88	1,735.27	680.64	912.59	853.31	59.28	15.395			
5,300.00	3,668.94	4,431.12	3,114.99	34.17	28.66	53.85	1,835.26	680.62	911.86	849.04	62.82	14.515			
5,400.00	3,668.07	4,531.12	3,114.11	35.94	30.44	53.81	1,935.25	680.59	911.13	844.75	66.38	13.727			
5,500.00	3,667.19	4,631.11	3,113.24	37.72	32.23	53.78	2,035.25	680.57	910.40	840.46	69.94	13.016			
5,600.00	3,666.32	4,731.11	3,112.37	39.50	34.02	53.75	2,135.24	680.54	909.67	836.15	73.52	12.373			
5,700.00	3,665.45	4,831.11	3,111.50	41.29	35.81	53.71	2,235.23	680.52	908.94	831.84	77.10	11.789			
5,800.00	3,664.58	4,931.10	3,110.62	43.08	37.61	53.68	2,335.22	680.49	908.22	827.52	80.69	11.255			
5,900.00	3,663.71	5,031.10	3,109.75	44.87	39.42	53.65	2,435.22	680.46	907.49	823.20	84.29	10.766			
6,000.00	3,662.83	5,131.09	3,108.88	46.67	41.22	53.61	2,535.21	680.44	906.76	818.87	87.89	10.317			
6,100.00	3,661.96	5,231.09	3,108.01	48.47	43.03	53.58	2,635.20	680.41	906.04	814.54	91.50	9.902			
6,200.00	3,661.09	5,331.09	3,107.13	50.27	44.84	53.54	2,735.19	680.39	905.31	810.20	95.11	9.518			
6,300.00	3,660.22	5,431.08	3,106.26	52.07	46.65	53.51	2,835.18	680.36	904.58	805.86	98.73	9.163			
6,400.00	3,659.35	5,531.08	3,105.39	53.88	48.47	53.48	2,935.18	680.34	903.86	801.51	102.34	8.831			
6,500.00	3,658.47	5,631.07	3,104.52	55.69	50.28	53.44	3,035.17	680.31	903.13	797.17	105.97	8.523			
6,600.00	3,657.60	5,731.07	3,103.64	57.50	52.10	53.41	3,135.16	680.29	902.41	792.82	109.59	8.234			
6,700.00	3,656.73	5,831.07	3,102.77	59.30	53.91	53.37	3,235.15	680.26	901.68	788.47	113.22	7.964			
6,800.00	3,655.86	5,931.06	3,101.90	61.12	55.73	53.34	3,335.14	680.24	900.96	784.11	116.85	7.711			
6,900.00	3,654.99	6,031.06	3,101.02	62.93	57.55	53.31	3,435.14	680.21	900.23	779.76	120.48	7.472			
7,000.00	3,654.11	6,131.05	3,100.15	64.74	59.37	53.27	3,535.13	680.19	899.51	775.40	124.11	7.248			
7,100.00	3,653.24	6,231.05	3,099.28	66.55	61.19	53.24	3,635.12	680.16	898.79	771.04	127.74	7.036			
7,200.00	3,652.37	6,331.04	3,098.41	68.37	63.01	53.20	3,735.11	680.14	898.06	766.68	131.38	6.836			
7,300.00	3,651.50	6,431.04	3,097.53	70.18	64.83	53.17	3,835.11	680.11	897.34	762.32	135.02	6.646			
7,400.00	3,650.63	6,531.04	3,096.66	72.00	66.66	53.13	3,935.10	680.09	896.62	757.96	138.66	6.466			
7,500.00	3,649.75	6,631.03	3,095.79	73.82	68.48	53.10	4,035.09	680.06	895.90	753.60	142.30	6.296			
7,600.00	3,648.88	6,731.03	3,094.92	75.64	70.30	53.06	4,135.08	680.04	895.17	749.24	145.94	6.134			
7,700.00	3,648.01	6,831.02	3,094.04	77.45	72.13	53.03	4,235.07	680.01	894.45	744.87	149.58	5.980			
7,800.00	3,647.14	6,931.02	3,093.17	79.27	73.95	52.99	4,335.07	679.99	893.73	740.51	153.22	5.833			
7,900.00	3,646.27	7,031.02	3,092.30	81.09	75.78	52.96	4,435.06	679.96	893.01	736.14	156.87	5.693			
8,000.00	3,645.39	7,131.01	3,091.43	82.91	77.60	52.92	4,535.05	679.94	892.29	731.78	160.51	5.559			
8,100.00	3,644.52	7,231.01	3,090.55	84.73	79.43	52.89	4,635.04	679.91	891.57	727.41	164.16	5.431			
8,200.00	3,643.65	7,331.00	3,089.68	86.55	81.25	52.85	4,735.03	679.89	890.85	723.05	167.80	5.309			
8,300.00	3,642.78	7,431.00	3,088.81	88.37	83.08	52.82	4,835.03	679.86	890.13	718.68	171.45	5.192			
8,400.00	3,641.91	7,531.00	3,087.94	90.19	84.91	52.78	4,935.02	679.84	889.41	714.31	175.10	5.079			
8,500.00	3,641.03	7,630.99	3,087.06	92.02	86.73	52.75	5,035.01	679.81	888.69	709.95	178.75	4.972			
8,538.38	3,640.70	7,669.37	3,086.73	92.71	87.43	52.73	5,073.38	679.80	888.42	708.27	180.15	4.932 ES, SF			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #26H:
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

Offset Design Sherman 4 Fee - #6H - WB1 - Plan #1 09-04-13														Offset Site Error:	0.00 usft
Survey Program: 0-MWD														Offset Well Error:	0.00 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Footface (°)	Offset Wellbore Centre N-S (usft)	Offset Wellbore Centre E-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
0.00	0.00	0.00	0.00	0.00	0.00	-10.24	299.60	-54.10	304.81						
100.00	100.00	85.00	85.00	0.09	0.10	-10.24	299.60	-54.10	304.45	304.26	0.19	1,621.894			
200.00	200.00	185.00	185.00	0.32	0.30	-10.24	299.60	-54.10	304.45	303.83	0.62	490.760			
300.00	300.00	285.00	285.00	0.54	0.53	-10.24	299.60	-54.10	304.45	303.38	1.07	284.559			
400.00	400.00	385.00	385.00	0.77	0.75	-10.24	299.60	-54.10	304.45	302.93	1.52	200.370			
500.00	500.00	485.00	485.00	0.99	0.98	-10.24	299.60	-54.10	304.45	302.48	1.97	154.623			
600.00	600.00	585.00	585.00	1.22	1.20	-10.24	299.60	-54.10	304.45	302.03	2.42	125.883			
700.00	700.00	685.00	685.00	1.44	1.43	-10.24	299.60	-54.10	304.45	301.58	2.87	106.152			
800.00	800.00	785.00	785.00	1.67	1.65	-10.24	299.60	-54.10	304.45	301.13	3.32	91.768			
900.00	900.00	885.00	885.00	1.89	1.88	-10.24	299.60	-54.10	304.45	300.68	3.77	80.817			
1,000.00	1,000.00	985.00	985.00	2.12	2.10	-10.24	299.60	-54.10	304.45	300.23	4.22	72.201			
1,100.00	1,100.00	1,085.00	1,085.00	2.34	2.33	-10.24	299.60	-54.10	304.45	299.78	4.67	65.246			
1,200.00	1,200.00	1,185.00	1,185.00	2.56	2.55	-10.24	299.60	-54.10	304.45	299.33	5.12	59.512			
1,300.00	1,300.00	1,285.00	1,285.00	2.79	2.78	-10.24	299.60	-54.10	304.45	298.88	5.57	54.705			
1,400.00	1,400.00	1,385.00	1,385.00	3.01	3.00	-10.24	299.60	-54.10	304.45	298.43	6.01	50.617			
1,500.00	1,500.00	1,485.00	1,485.00	3.24	3.23	-10.24	299.60	-54.10	304.45	297.98	6.46	47.097			
1,600.00	1,600.00	1,585.00	1,585.00	3.46	3.45	-10.24	299.60	-54.10	304.45	297.53	6.91	44.034			
1,700.00	1,700.00	1,685.00	1,685.00	3.69	3.67	-10.24	299.60	-54.10	304.45	297.08	7.36	41.346			
1,800.00	1,800.00	1,785.00	1,785.00	3.91	3.90	-10.24	299.60	-54.10	304.45	296.63	7.81	38.967			
1,900.00	1,900.00	1,885.00	1,885.00	4.14	4.12	-10.24	299.60	-54.10	304.45	296.18	8.26	36.847			
2,000.00	2,000.00	1,985.00	1,985.00	4.36	4.35	-10.24	299.60	-54.10	304.45	295.73	8.71	34.946			
2,100.00	2,100.00	2,085.00	2,085.00	4.59	4.57	-10.24	299.60	-54.10	304.45	295.28	9.16	33.231			
2,200.00	2,200.00	2,185.00	2,185.00	4.81	4.80	-10.24	299.60	-54.10	304.45	294.83	9.61	31.677			
2,300.00	2,300.00	2,285.00	2,285.00	5.04	5.02	-10.24	299.60	-54.10	304.45	294.38	10.06	30.261			
2,400.00	2,400.00	2,385.00	2,385.00	5.26	5.25	-10.24	299.60	-54.10	304.45	293.94	10.51	28.967			
2,500.00	2,500.00	2,485.00	2,485.00	5.49	5.47	-10.24	299.60	-54.10	304.45	293.49	10.96	27.779			
2,552.09	2,552.09	2,537.09	2,537.09	5.60	5.59	-10.24	299.60	-54.10	304.45	293.25	11.19	27.198	CC, ES		
2,600.00	2,600.00	2,573.87	2,573.87	5.71	5.67	-10.22	299.96	-54.10	305.00	293.62	11.38	26.790			
2,700.00	2,700.00	2,636.66	2,636.32	5.94	5.82	-10.03	306.06	-54.13	314.59	302.84	11.76	26.756			
2,800.00	2,800.00	2,700.00	2,698.12	6.16	5.98	-9.62	319.77	-54.20	335.77	323.62	12.14	27.654			
2,900.00	2,900.00	2,750.00	2,745.45	6.39	6.11	-9.18	335.83	-54.28	367.70	355.21	12.50	29.426			
3,000.00	3,000.00	2,800.00	2,791.02	6.61	6.24	-8.68	358.36	-54.37	409.36	396.51	12.85	31.853			
3,100.00	3,100.00	2,850.00	2,834.41	6.84	6.39	-8.14	381.16	-54.49	459.40	446.17	13.22	34.738			
3,159.58	3,159.58	2,879.22	2,858.61	6.97	6.51	-7.82	397.54	-54.57	492.75	479.26	13.48	36.544			
3,200.00	3,199.96	2,900.00	2,875.23	7.06	6.60	-1.51	410.00	-54.63	515.48	501.82	13.66	37.726			
3,250.00	3,249.55	2,917.39	2,888.76	7.18	6.70	-1.27	420.94	-54.69	541.45	527.57	13.88	39.023			
3,300.00	3,298.31	2,950.00	2,913.10	7.30	6.87	-0.92	442.62	-54.79	565.29	551.11	14.17	39.889			
3,350.00	3,345.79	2,950.00	2,913.10	7.43	6.87	-0.88	442.62	-54.79	586.40	572.11	14.30	41.019			
3,400.00	3,391.55	2,981.85	2,935.52	7.55	7.08	-0.60	465.24	-54.90	604.88	590.25	14.63	41.349			
3,450.00	3,435.18	3,000.00	2,947.66	7.69	7.20	-0.45	478.73	-54.97	621.03	606.15	14.88	41.727			
3,500.00	3,476.28	3,025.33	2,963.81	7.87	7.40	-0.25	498.24	-55.06	634.56	619.29	15.27	41.557			
3,550.00	3,514.46	3,050.00	2,978.61	8.11	7.59	-0.06	517.98	-55.16	645.51	629.81	15.70	41.124			
3,600.00	3,549.36	3,069.05	2,989.38	8.39	7.76	0.08	533.68	-55.23	653.80	637.64	16.16	40.462			
3,650.00	3,580.69	3,100.00	3,005.65	8.74	8.05	0.30	560.01	-55.36	659.58	642.79	16.79	39.287			
3,700.00	3,608.13	3,100.00	3,005.65	9.15	8.05	0.30	560.01	-55.36	662.70	645.51	17.20	38.533			
3,750.00	3,631.44	3,134.80	3,022.03	9.62	8.41	0.57	590.70	-55.51	662.73	644.69	18.04	36.743			
3,800.00	3,650.41	3,150.00	3,028.53	10.16	8.57	0.69	604.44	-55.57	660.43	641.70	18.73	35.259			
3,850.00	3,664.86	3,178.59	3,039.67	10.75	8.91	0.93	630.77	-55.70	655.32	635.66	19.66	33.339			
3,900.00	3,674.66	3,200.00	3,047.06	11.39	9.16	1.13	650.86	-55.80	647.63	627.08	20.55	31.521			
3,950.00	3,679.71	3,222.22	3,053.84	12.07	9.44	1.35	672.02	-55.90	637.31	615.80	21.51	29.631			
3,982.31	3,680.43	3,236.27	3,057.66	12.52	9.62	1.51	685.54	-55.97	629.25	607.11	22.14	28.418			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation



Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #26H
Project:	Eddy County, NM (NAD27 NME)	TVD Reference:	KB @ 3363.00usft (Silver Oak 3)
Reference Site:	Sherman 4 Fee	MD Reference:	KB @ 3363.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

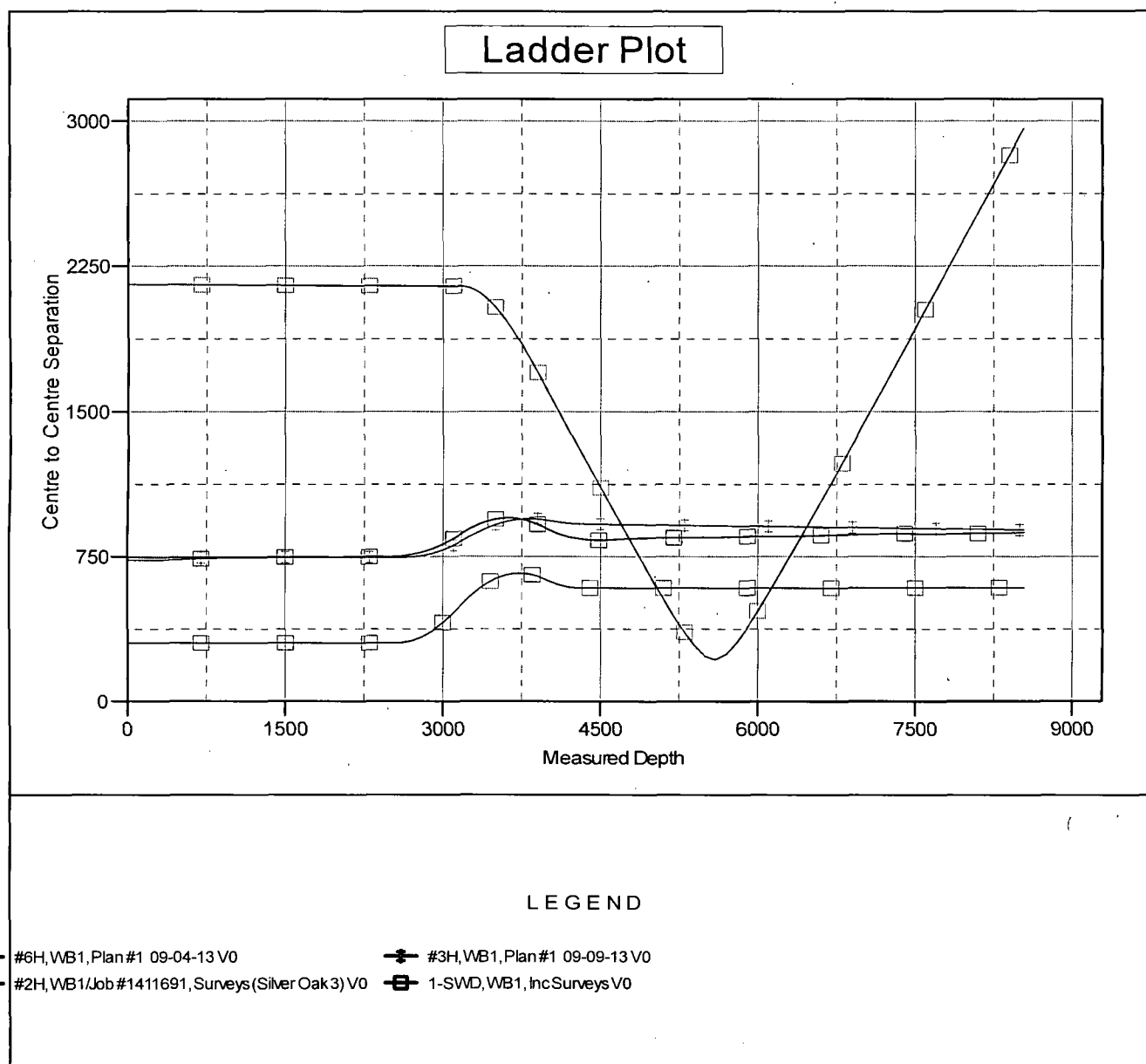
Offset Design Sherman 4 Fee #6H - WB1 - Plan #1 09-04-13														Offset Site Error:	0.00 usft
Survey Program: 0-MWD														Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Reference		Highside	Offset Wellbore Centre		Distance		Minimum	Separation	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Tooface (ft)	+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor			
4,000.00	3,680.28	3,250.00	3,061.04	12.77	9.79	1.50	698.85	-56.03	624.73	602.17	22.56	27.692			
4,100.00	3,679.40	3,300.00	3,070.37	14.13	10.48	1.16	747.95	-56.27	603.83	579.22	24.61	24.540			
4,199.07	3,678.54	3,334.55	3,074.04	15.56	10.97	0.83	782.29	-56.43	591.16	564.63	26.53	22.284			
4,300.00	3,677.66	3,387.05	3,075.34	17.10	11.74	0.76	834.76	-56.69	587.39	558.55	28.84	20.368			
4,400.00	3,676.79	3,487.04	3,074.46	18.70	13.28	0.63	934.75	-57.17	587.38	555.40	31.98	18.365			
4,500.00	3,675.91	3,587.03	3,073.59	20.34	14.88	0.49	1,034.73	-57.65	587.37	552.14	35.23	16.674			
4,600.00	3,675.04	3,687.02	3,072.72	22.01	16.54	-0.36	1,134.72	-58.14	587.36	548.81	38.55	15.237			
4,700.00	3,674.17	3,787.01	3,071.85	23.71	18.22	0.23	1,234.70	-58.62	587.35	545.42	41.93	14.008			
4,800.00	3,673.30	3,887.00	3,070.97	25.42	19.94	0.09	1,334.69	-59.10	587.35	541.99	45.36	12.950			
4,847.58	3,672.88	3,934.58	3,070.56	26.24	20.76	0.03	1,382.28	-59.33	587.35	540.35	47.00	12.496			
4,900.00	3,672.43	3,986.99	3,070.10	27.15	21.67	-0.04	1,434.68	-59.59	587.35	538.53	48.82	12.032			
5,000.00	3,671.55	4,086.99	3,069.23	28.89	23.42	-0.17	1,534.66	-60.07	587.35	535.04	52.31	11.229			
5,100.00	3,670.68	4,186.98	3,068.36	30.64	25.18	-0.30	1,634.65	-60.55	587.36	531.54	55.82	10.523			
5,200.00	3,669.81	4,286.97	3,067.48	32.40	26.95	-0.44	1,734.63	-61.04	587.37	528.02	59.35	9.897			
5,300.00	3,668.94	4,386.96	3,066.61	34.17	28.73	-0.57	1,834.62	-61.52	587.38	524.49	62.89	9.339			
5,400.00	3,668.07	4,486.95	3,065.74	35.94	30.51	-0.70	1,934.60	-62.00	587.39	520.94	66.45	8.839			
5,500.00	3,667.19	4,586.94	3,064.87	37.72	32.30	-0.83	2,034.59	-62.49	587.41	517.39	70.02	8.389			
5,600.00	3,666.32	4,686.93	3,063.99	39.50	34.10	-0.97	2,134.58	-62.97	587.44	513.84	73.60	7.982			
5,700.00	3,665.45	4,786.92	3,063.12	41.29	35.90	-1.10	2,234.56	-63.45	587.46	510.28	77.19	7.611			
5,800.00	3,664.58	4,886.91	3,062.25	43.08	37.70	-1.23	2,334.55	-63.94	587.49	506.71	80.78	7.273			
5,900.00	3,663.71	4,986.90	3,061.38	44.87	39.51	-1.37	2,434.53	-64.42	587.52	503.14	84.38	6.963			
6,000.00	3,662.83	5,086.89	3,060.50	46.67	41.31	-1.50	2,534.52	-64.91	587.56	499.57	87.98	6.678			
6,100.00	3,661.96	5,186.88	3,059.63	48.47	43.12	-1.63	2,634.50	-65.39	587.59	496.00	91.59	6.415			
6,200.00	3,661.09	5,286.87	3,058.76	50.27	44.94	-1.76	2,734.49	-65.87	587.64	492.43	95.21	6.172			
6,300.00	3,660.22	5,386.86	3,057.89	52.07	46.75	-1.90	2,834.48	-66.36	587.68	488.85	98.83	5.947			
6,400.00	3,659.35	5,486.86	3,057.01	53.88	48.57	-2.03	2,934.46	-66.84	587.73	485.28	102.45	5.737			
6,500.00	3,658.47	5,586.85	3,056.14	55.69	50.38	-2.16	3,034.45	-67.32	587.78	481.71	106.07	5.541			
6,600.00	3,657.60	5,686.84	3,055.27	57.50	52.20	-2.29	3,134.43	-67.81	587.83	478.13	109.70	5.359			
6,700.00	3,656.73	5,786.83	3,054.40	59.30	54.02	-2.43	3,234.42	-68.29	587.89	474.56	113.32	5.188			
6,800.00	3,655.86	5,886.82	3,053.52	61.12	55.84	-2.56	3,334.40	-68.77	587.95	470.99	116.96	5.027			
6,900.00	3,654.99	5,986.81	3,052.65	62.93	57.66	-2.69	3,434.39	-69.26	588.01	467.42	120.59	4.876			
7,000.00	3,654.11	6,086.80	3,051.78	64.74	59.48	-2.82	3,534.38	-69.74	588.08	463.85	124.22	4.734			
7,100.00	3,653.24	6,186.79	3,050.91	66.55	61.31	-2.96	3,634.36	-70.22	588.15	460.29	127.86	4.600			
7,200.00	3,652.37	6,286.78	3,050.03	68.37	63.13	-3.09	3,734.35	-70.71	588.22	456.72	131.50	4.473			
7,300.00	3,651.50	6,386.77	3,049.16	70.18	64.95	-3.22	3,834.33	-71.19	588.29	453.16	135.14	4.353			
7,400.00	3,650.63	6,486.76	3,048.29	72.00	66.78	-3.35	3,934.32	-71.67	588.37	449.60	138.78	4.240			
7,500.00	3,649.75	6,586.75	3,047.41	73.82	68.60	-3.49	4,034.31	-72.16	588.46	446.04	142.42	4.132			
7,600.00	3,648.88	6,686.74	3,046.54	75.64	70.43	-3.62	4,134.29	-72.64	588.54	442.48	146.06	4.029			
7,700.00	3,648.01	6,786.73	3,045.67	77.45	72.25	-3.75	4,234.28	-73.12	588.63	438.92	149.71	3.932			
7,800.00	3,647.14	6,886.73	3,044.80	79.27	74.08	-3.88	4,334.26	-73.61	588.72	435.37	153.35	3.839			
7,900.00	3,646.27	6,986.72	3,043.92	81.09	75.91	-4.02	4,434.25	-74.09	588.82	431.82	157.00	3.750			
8,000.00	3,645.39	7,086.71	3,043.05	82.91	77.73	-4.15	4,534.23	-74.57	588.91	428.27	160.64	3.666			
8,100.00	3,644.52	7,186.70	3,042.18	84.73	79.56	-4.28	4,634.22	-75.06	589.01	424.72	164.29	3.585			
8,200.00	3,643.65	7,286.69	3,041.31	86.55	81.39	-4.41	4,734.21	-75.54	589.12	421.18	167.94	3.508			
8,300.00	3,642.78	7,386.68	3,040.43	88.37	83.22	-4.54	4,834.19	-76.02	589.22	417.64	171.59	3.434			
8,400.00	3,641.91	7,486.67	3,039.56	90.19	85.04	-4.68	4,934.18	-76.51	589.33	414.10	175.24	3.363			
8,500.00	3,641.03	7,586.66	3,038.69	92.02	86.87	-4.81	5,034.16	-76.99	589.45	410.56	178.89	3.295			
8,538.38	3,640.70	7,625.03	3,038.35	92.71	87.58	-4.86	5,072.53	-77.18	589.49	409.20	180.29	3.270 SF			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

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Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at:	2.00 sigma
Reference Wellbore:	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 3363.00usft (Silver Oak 3)
 Offset Depths are relative to Offset Datum
 Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: #26H
 Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
 Grid Convergence at Surface is: -0.03°



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #26H
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Reference Well:	#26H	Survey Calculation Method:	Minimum Curvature
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Reference Wellbore:	WB1	Database:	Compass 5000 GCR
Reference Design:	Plan #1 12-15-14	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 3363.00usft (Silver Oak 3)
 Offset Depths are relative to Offset Datum
 Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: #26H
 Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
 Grid Convergence at Surface is: -0.03°

