

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

RECEIVED
JAN 31 2017
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

WELL API NO. 30-015-43399
5. Indicate Type of Lease STATE ☒ FEE ☐
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name 314 086 Pinto 36 State (Co) RNP
8. Well Number 27H
9. OGRID Number 229137 ✓
10. Pool name or Wildcat Penasco Draw; SA-Yeso (Assoc) 50270

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.)

1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐

2. Name of Operator
COG Operating LLC

3. Address of Operator
600 W. Illinois Ave.,
Midland, TX 79701

4. Well Location *Revised: R.R.*
Unit Letter *B* *150* feet from the *South* line and *150* feet from the *West* line
Section *36* *990* Township *18S* Range *25E* NMPM County *EDDY*

11. Elevation (Show whether DR, RKB, RT, GR, etc.)
3469 GR *3505*

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 ☐
CLOSED-LOOP SYSTEM ☐
OTHER: ☐

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 proposes to make the following changes to this well:

Change the well name to: Pinto 36 State #27H

Change the location: SHL: 990 FSL 150 FWL, Sec 36, 18S, 25E, Unit M; BHL: 990 FSL 220 FEL, Sec 36, 18S, 25E, Unit P

Casing/Cement Program:

Drill an 11" hole to 1200' w/fresh water, run 8 5/8" 32# J-55 and cement to surface with 700 sacks. Drill a 7 7/8" hole to 3091' MD and kick off and drill curve to 3611' TVD 3927' MD. Drill a 7 7/8" lateral to new BHL @ 3456' TVD 8374' MD. Run a 5 1/2" 17# L-80 casing to TD cement to surface with 800 sacks.

All other aspects of this well will remain the same. Attached are the revised plats and directional plans.

Spud Date:

02/09/2017

Rig Release Date:

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

SIGNATURE *Robyn M. Russell* TITLE Regulatory Analyst DATE 01/30/17

Type or print name Robyn M. Russell E-mail address: Rrussell@concho.com PHONE: 432-685-4385

For State Use Only

APPROVED BY: *Raymond M. Padany* TITLE Geo/0913+ DATE 2-7-2017
Conditions of Approval (if any):

**NM OIL CONSERVATION
ARTESIA DISTRICT**

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

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

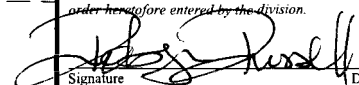
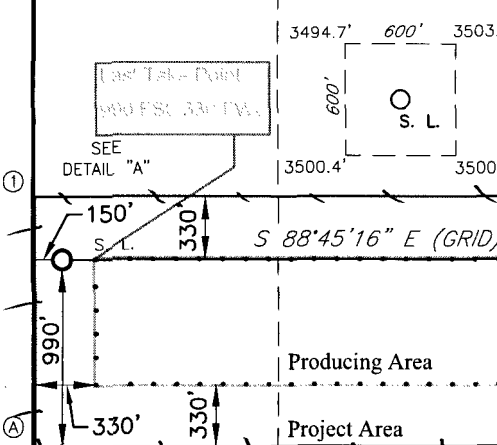
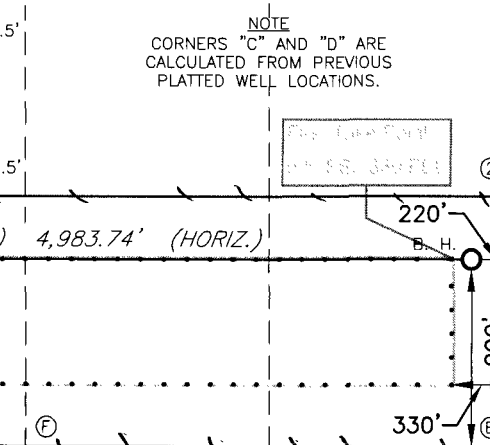
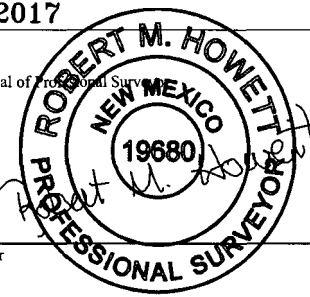
Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-43399		² Pool Code 50270		³ Pool Name Penasco Draw; SA-Yeso (Assoc)					
⁴ Property Code 314086		⁵ Property Name PINTO 36 STATE						⁶ Well Number 27H	
⁷ OGRID NO. 229137		⁸ Operator Name COG OPERATING, LLC						⁹ Elevation 3505' ✓	
¹⁰ Surface Location									
UL or lot no. M	Section 36	Township 18S	Range 25E	Lot Idn	Feet from the 990	North/South line SOUTH	Feet From the 150	East/West line WEST	County EDDY
¹¹ Bottom Hole Location If Different From Surface									
UL or lot no. P	Section 36	Township 18S	Range 25E	Lot Idn	Feet from the 990	North/South line SOUTH	Feet from the 220	East/West line EAST	County EDDY
¹² Dedicated Acres 160		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.			

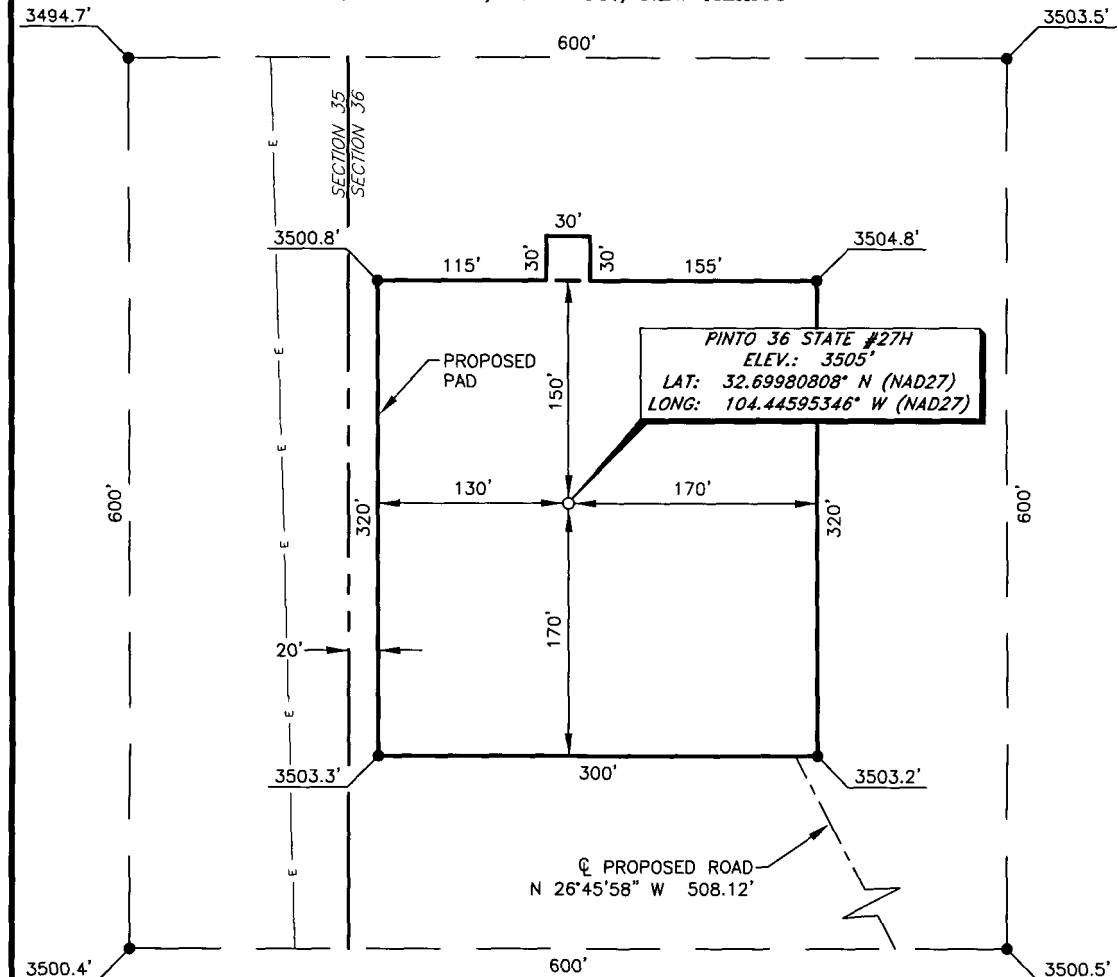
No allowable will be assigned to this completion until all interest have been consolidated or a non-standard unit has been approved by the division.

GEODETIC DATA NAD 27 GRID - NM EAST SURFACE LOCATION N 618319.6 - E 465356.1 LAT: 32.69980808° N LONG: 104.44595346° W BOTTOM HOLE N 618211.3 - E 470337.4 LAT: 32.69952390° N LONG: 104.42975995° W		CORNER DATA NAD 27 GRID - NM EAST A: FOUND 1/2" REBAR N 617333.3 - E 465187.5 B: FOUND 1/2" REBAR N 622576.1 - E 465286.4 C: CALCULATED CORNER N 622553.5 - E 467927.6 D: CALCULATED CORNER N 622530.7 - E 470569.0 E: FOUND 1/2" REBAR N 617216.7 - E 470554.6 F: FOUND 1/2" REBAR N 617275.4 - E 467867.0 1: CALCULATED POINT N 618644.0 - E 465212.2 2: CALCULATED POINT N 618545.2 - E 470558.2 NOTE CORNERS "C" AND "D" ARE CALCULATED FROM PREVIOUS PLATTED WELL LOCATIONS.		17 OPERATOR CERTIFICATION <i>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 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</i>  01/30/2017 Signature Date Robyn M. Russell Printed Name Russell@concho.com E-mail Address	
DETAIL "A" 		36 		18 SURVEYOR CERTIFICATION <i>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.</i> 1-13-2017 Date of Survey  Signature and Seal of Professional Surveyor 19680 Certificate Number	

RRC - Firm No.: TX 10193838 NM 4655451 - Job No.: LS1701010

COG OPERATING, LLC

PINTO 36 STATE #27H
(990' FSL & 150' FWL)
SECTION 36, T18S, R25E
N. M. P. M., EDDY CO., NEW MEXICO



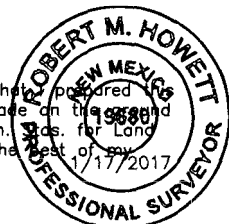
DIRECTIONS TO LOCATION

From the intersection of U.S. Hwy. 285 and CR-38 (Kincaid Rd.);
Go West on CR-38 approx. 2.8 miles to a lease road on the left;
Turn left and go South approx. 0.9 miles to a lease road on the right;
Turn right and go approx. 150 feet to a proposed road on the right;
Turn right on proposed road and go Northwest approx. 0.1 miles to location on the left.

SCALE: 1" = 100'
0 50 100
BEARINGS ARE
NAD 27 GRID - NM EAST
DISTANCES ARE
GROUND.

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that the prepared and unclassified survey of a well location from an actual survey made on the 1/13/2017 and under my direct supervision, said survey and plat meet the Min. reqs. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett
Robert M. Howett NM PS 19680



Firm No.: TX 10193838 NM 4655451

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NO.	REVISION	DATE
JOB NO.:	LS1701010	
DWG. NO.:	1701010PAD	

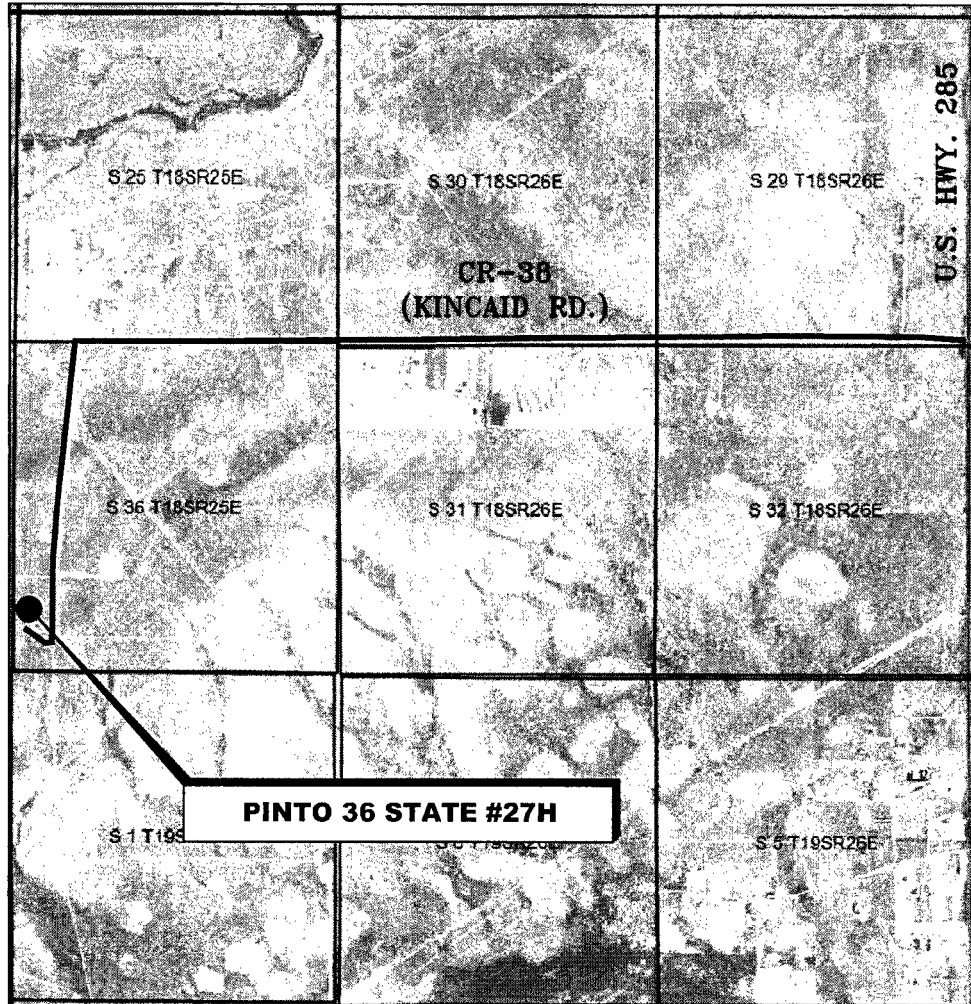
RRC

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

SCALE: 1" = 100'
DATE: 1-13-2017
SURVEYED BY: BK/CG
DRAWN BY: CMJ
APPROVED BY: RMH
SHEET: 1 OF 1

VICINITY MAP

NOT TO SCALE



*SECTION 36, TWP. 18 SOUTH, RGE. 25 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO*

OPERATOR: COG Operating, LLC
 LEASE: Pinto 36 State
 WELL NO.: 27H

LOCATION: 990' FSL & 150' FWL
 ELEVATION: 3505'

Firm No.: TX 10193838 NM 4655451

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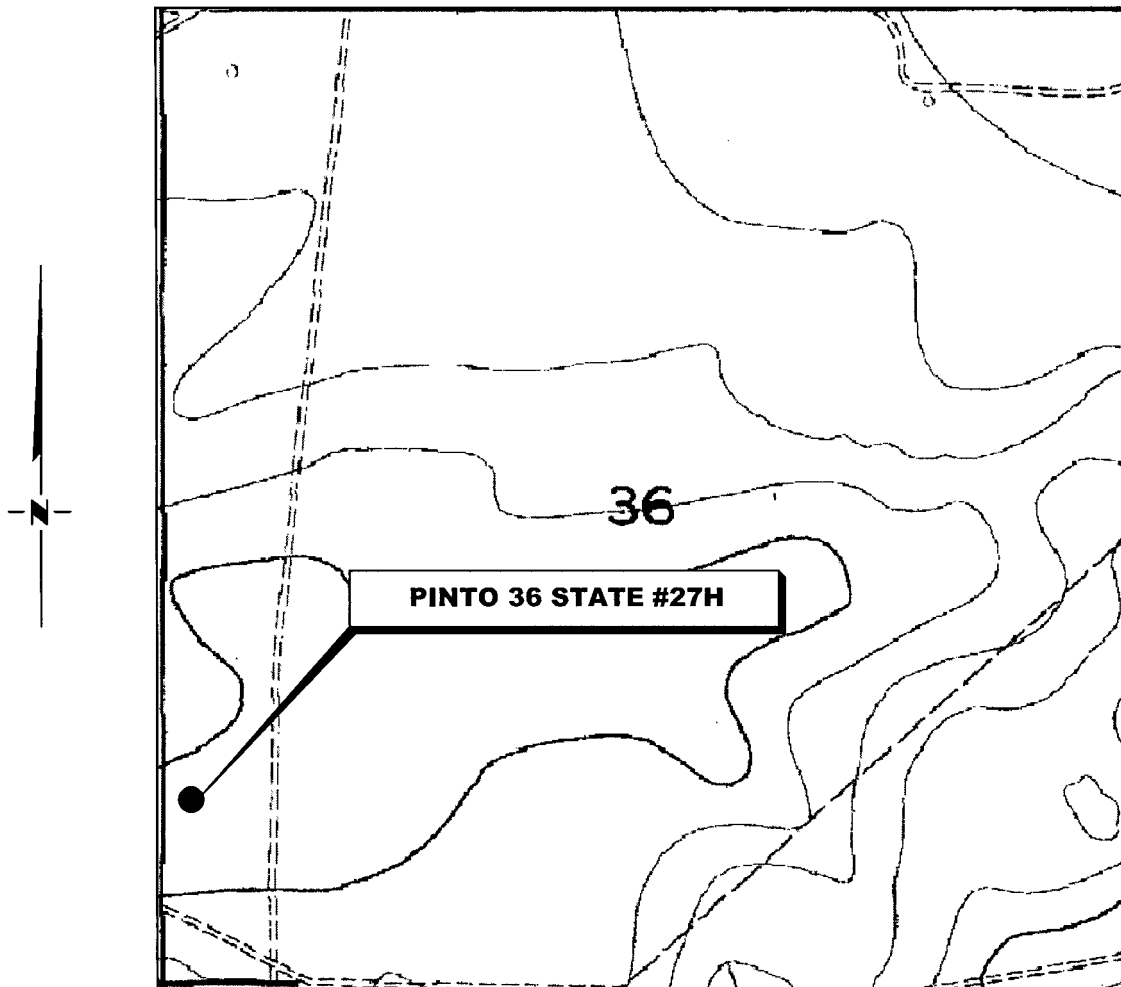
NO.	REVISION	DATE
JOB NO.: LS1701010		
DWG. NO.: 1701010VM		

RRC

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

SCALE: N. T. S.
DATE: 1-13-2017
SURVEYED BY: BK/CG
DRAWN BY: CMJ
APPROVED BY: RMH
SHEET: 1 OF 1

LOCATION VERIFICATION MAP



*SECTION 36, TWP. 18 SOUTH, RGE. 25 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO*

OPERATOR: COG Operating, LLC

LEASE: Pinto 36 State

WELL NO.: 27H

ELEVATION: 3505'

LOCATION: 990' FSL & 150' FWL

CONTOUR INTERVAL: 10'

USGS TOPO. SOURCE MAP:

Dayton, NM (P. E. 1955)

Firm No.: TX 10193838 NM 4655451

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NO.	REVISION	DATE
JOB NO.:	LS1701010	
DWG. NO.:	1701010LVM	

RRC

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

SCALE: 1" = 1000'
DATE: 1-13-2017
SURVEYED BY: BK/CG
DRAWN BY: CMJ
APPROVED BY: RMH
SHEET: 1 OF 1



COG Operating LLC

Eddy County, NM (NAD-27 2015)

Pinto 36 State #27H

SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M

PP: 981' FSL, 330' FWL, Sec 36, T18S, R25E, Unit M

BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P

Plan: Design #1

Standard Planning Report

26 January, 2017





TDS
Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Site: Pinto 36 State #27H
Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Design: Design #1

Local Co-ordinate Reference: Site Pinto 36 State #27H
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Eddy County, NM (NAD-27 2015)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site	Pinto 36 State #27H		
Site Position:		Northing:	618,319.60 usft
From:	Map	Easting:	465,356.10 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	32° 41' 59.309 N
		Longitude:	104° 26' 45.432 W
		Grid Convergence:	-0.06 °

Well	SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 41' 59.309 N
		Longitude:	104° 26' 45.432 W
		Ground Level:	3,505.00 usft

Wellbore	BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P		
Magnetics	Model Name	Sample Date	Declination
	IGRF2015	1/26/2017	(°)
			7.43
			Dip Angle
			(°)
			60.36
			Field Strength
			(nT)
			48,165

Design	Design #1		
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
			Direction
			(°)
			91.25

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	
3,090.63	0.00	0.00	3,090.63	0.00	0.00	0.00	0.00	0.00	0.00	
3,926.99	92.00	94.07	3,611.18	-38.26	537.69	11.00	11.00	0.00	94.07	
4,033.78	92.00	90.86	3,607.46	-42.85	644.29	3.00	0.00	-3.00	-89.95	
8,373.92	92.00	90.86	3,456.01	-108.30	4,981.30	0.00	0.00	0.00	0.00	PBHL (P36S#27H/L1)



TDS
Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Site: Pinto 36 State #27H
Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S,
R25E, Unit M
Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S,
R25E, Unit P
Design: Design #1

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

Site Pinto 36 State #27H
KB @ 3523.00usft (Silver Oak 3)
KB @ 3523.00usft (Silver Oak 3)
Grid
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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,090.63	0.00	0.00	3,090.63	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 11.00									
3,100.00	1.03	94.07	3,100.00	-0.01	0.08	0.08	11.00	11.00	0.00
3,150.00	6.53	94.07	3,149.87	-0.24	3.37	3.38	11.00	11.00	0.00
3,200.00	12.03	94.07	3,199.20	-0.81	11.41	11.43	11.00	11.00	0.00
3,250.00	17.53	94.07	3,247.53	-1.72	24.13	24.16	11.00	11.00	0.00
3,300.00	23.03	94.07	3,294.41	-2.95	41.41	41.47	11.00	11.00	0.00
3,350.00	28.53	94.07	3,339.41	-4.49	63.09	63.18	11.00	11.00	0.00
3,400.00	34.03	94.07	3,382.13	-6.33	88.98	89.10	11.00	11.00	0.00
3,450.00	39.53	94.07	3,422.16	-8.46	118.83	118.99	11.00	11.00	0.00
3,500.00	45.03	94.07	3,459.14	-10.84	152.37	152.57	11.00	11.00	0.00
3,550.00	50.53	94.07	3,492.72	-13.47	189.29	189.54	11.00	11.00	0.00
3,600.00	56.03	94.07	3,522.61	-16.31	229.26	229.56	11.00	11.00	0.00
3,650.00	61.53	94.07	3,548.51	-19.35	271.89	272.25	11.00	11.00	0.00
3,700.00	67.03	94.07	3,570.20	-22.54	316.81	317.22	11.00	11.00	0.00
3,750.00	72.53	94.07	3,587.48	-25.87	363.59	364.07	11.00	11.00	0.00
3,800.00	78.03	94.07	3,600.18	-29.30	411.81	412.35	11.00	11.00	0.00
3,850.00	83.53	94.07	3,608.18	-32.80	461.02	461.62	11.00	11.00	0.00
3,900.00	89.03	94.07	3,611.43	-36.34	510.77	511.44	11.00	11.00	0.00
3,926.99	92.00	94.07	3,611.18	-38.26	537.69	538.39	11.00	11.00	0.00
Start DLS 3.00 TFO -89.95									



TDS
Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Site: Pinto 36 State #27H
Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S,
R25E, Unit M
Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S,
R25E, Unit P
Design: Design #1

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

Site Pinto 36 State #27H
KB @ 3523.00usft (Silver Oak 3)
KB @ 3523.00usft (Silver Oak 3)
Grid
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)
4,000.00	92.00	91.88	3,608.64	-42.04	610.55	611.32	3.00	0.00	-3.00
4,033.78	92.00	90.86	3,607.46	-42.85	644.29	645.07	3.00	0.00	-3.00
Start 4340.14 hold at 4033.78 MD									
4,100.00	92.00	90.86	3,605.15	-43.85	710.47	711.26	0.00	0.00	0.00
4,200.00	92.00	90.86	3,601.66	-45.36	810.40	811.19	0.00	0.00	0.00
4,300.00	92.00	90.86	3,598.17	-46.87	910.33	911.13	0.00	0.00	0.00
4,400.00	92.00	90.86	3,594.68	-48.38	1,010.25	1,011.07	0.00	0.00	0.00
4,500.00	92.00	90.86	3,591.19	-49.88	1,110.18	1,111.00	0.00	0.00	0.00
4,600.00	92.00	90.86	3,587.70	-51.39	1,210.11	1,210.94	0.00	0.00	0.00
4,700.00	92.00	90.86	3,584.21	-52.90	1,310.04	1,310.88	0.00	0.00	0.00
4,800.00	92.00	90.86	3,580.72	-54.41	1,409.96	1,410.81	0.00	0.00	0.00
4,900.00	92.00	90.86	3,577.23	-55.91	1,509.89	1,510.75	0.00	0.00	0.00
5,000.00	92.00	90.86	3,573.74	-57.42	1,609.82	1,610.69	0.00	0.00	0.00
5,100.00	92.00	90.86	3,570.25	-58.93	1,709.75	1,710.62	0.00	0.00	0.00
5,200.00	92.00	90.86	3,566.76	-60.44	1,809.68	1,810.56	0.00	0.00	0.00
5,300.00	92.00	90.86	3,563.27	-61.95	1,909.60	1,910.50	0.00	0.00	0.00
5,400.00	92.00	90.86	3,559.78	-63.45	2,009.53	2,010.43	0.00	0.00	0.00
5,500.00	92.00	90.86	3,556.29	-64.96	2,109.46	2,110.37	0.00	0.00	0.00
5,600.00	92.00	90.86	3,552.80	-66.47	2,209.39	2,210.31	0.00	0.00	0.00
5,700.00	92.00	90.86	3,549.31	-67.98	2,309.31	2,310.25	0.00	0.00	0.00
5,800.00	92.00	90.86	3,545.83	-69.49	2,409.24	2,410.18	0.00	0.00	0.00
5,900.00	92.00	90.86	3,542.34	-70.99	2,509.17	2,510.12	0.00	0.00	0.00
6,000.00	92.00	90.86	3,538.85	-72.50	2,609.10	2,610.06	0.00	0.00	0.00
6,100.00	92.00	90.86	3,535.36	-74.01	2,709.02	2,709.99	0.00	0.00	0.00
6,200.00	92.00	90.86	3,531.87	-75.52	2,808.95	2,809.93	0.00	0.00	0.00
6,300.00	92.00	90.86	3,528.38	-77.03	2,908.88	2,909.87	0.00	0.00	0.00
6,400.00	92.00	90.86	3,524.89	-78.53	3,008.81	3,009.80	0.00	0.00	0.00
6,500.00	92.00	90.86	3,521.40	-80.04	3,108.74	3,109.74	0.00	0.00	0.00
6,600.00	92.00	90.86	3,517.91	-81.55	3,208.66	3,209.68	0.00	0.00	0.00
6,700.00	92.00	90.86	3,514.42	-83.06	3,308.59	3,309.61	0.00	0.00	0.00
6,800.00	92.00	90.86	3,510.93	-84.57	3,408.52	3,409.55	0.00	0.00	0.00
6,900.00	92.00	90.86	3,507.44	-86.07	3,508.45	3,509.49	0.00	0.00	0.00
7,000.00	92.00	90.86	3,503.95	-87.58	3,608.37	3,609.43	0.00	0.00	0.00
7,100.00	92.00	90.86	3,500.46	-89.09	3,708.30	3,709.36	0.00	0.00	0.00
7,200.00	92.00	90.86	3,496.97	-90.60	3,808.23	3,809.30	0.00	0.00	0.00
7,300.00	92.00	90.86	3,493.48	-92.11	3,908.16	3,909.24	0.00	0.00	0.00
7,400.00	92.00	90.86	3,489.99	-93.61	4,008.08	4,009.17	0.00	0.00	0.00
7,500.00	92.00	90.86	3,486.50	-95.12	4,108.01	4,109.11	0.00	0.00	0.00
7,600.00	92.00	90.86	3,483.02	-96.63	4,207.94	4,209.05	0.00	0.00	0.00
7,700.00	92.00	90.86	3,479.53	-98.14	4,307.87	4,308.98	0.00	0.00	0.00
7,800.00	92.00	90.86	3,476.04	-99.65	4,407.80	4,408.92	0.00	0.00	0.00
7,900.00	92.00	90.86	3,472.55	-101.15	4,507.72	4,508.86	0.00	0.00	0.00
8,000.00	92.00	90.86	3,469.06	-102.66	4,607.65	4,608.79	0.00	0.00	0.00
8,100.00	92.00	90.86	3,465.57	-104.17	4,707.58	4,708.73	0.00	0.00	0.00
8,200.00	92.00	90.86	3,462.08	-105.68	4,807.51	4,808.67	0.00	0.00	0.00
8,300.00	92.00	90.86	3,458.59	-107.19	4,907.43	4,908.60	0.00	0.00	0.00
8,373.92	92.00	90.86	3,456.01	-108.30	4,981.30	4,982.48	0.00	0.00	0.00
TD at 8373.92									



TDS
Planning Report



Database: EDM 5000.1 Single User Db
Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Site: Pinto 36 State #27H
Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Design: Design #1

Local Co-ordinate Reference: Site Pinto 36 State #27H
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP (P36S#27H/L1) - plan hits target center - Point	0.00	0.00	3,090.63	0.00	0.00	618,319.60	465,356.10	32° 41' 59.309 N	104° 26' 45.432 W
PBHL (P36S#27H/L1) - plan hits target center - Point	0.00	0.00	3,456.01	-108.30	4,981.30	618,211.30	470,337.40	32° 41' 58.286 N	104° 25' 47.136 W
PP (P36S#27H/L1) - plan hits target center - Point	0.00	0.00	3,484.70	-12.79	179.80	618,306.81	465,535.90	32° 41' 59.185 N	104° 26' 43.328 W
EOC (P36S#27H/L1) - plan hits target center - Point	0.00	360.00	3,611.18	-38.26	537.69	618,281.34	465,893.79	32° 41' 58.936 N	104° 26' 39.140 W

Plan Annotations

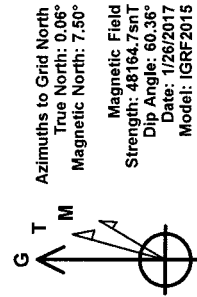
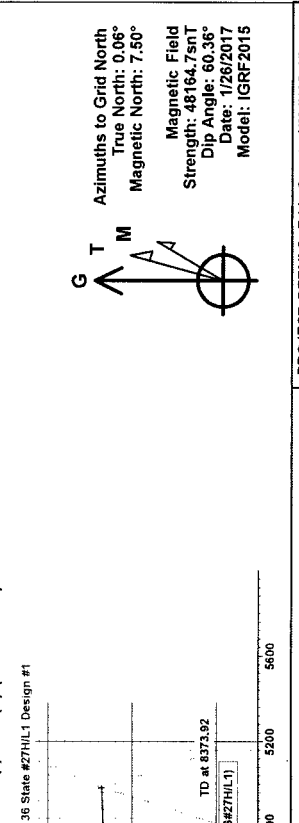
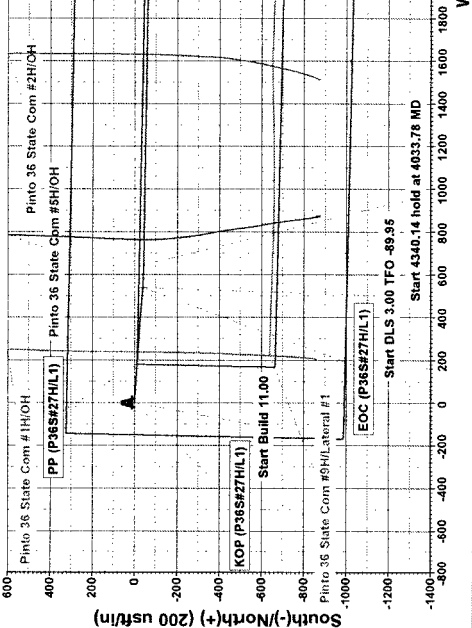
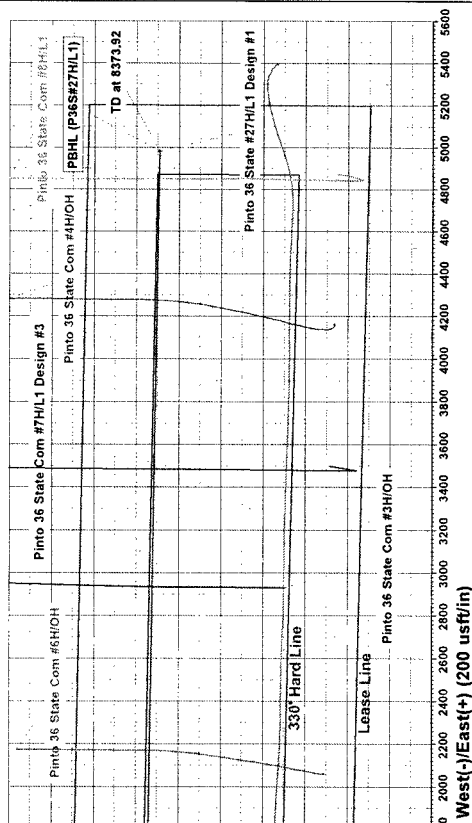
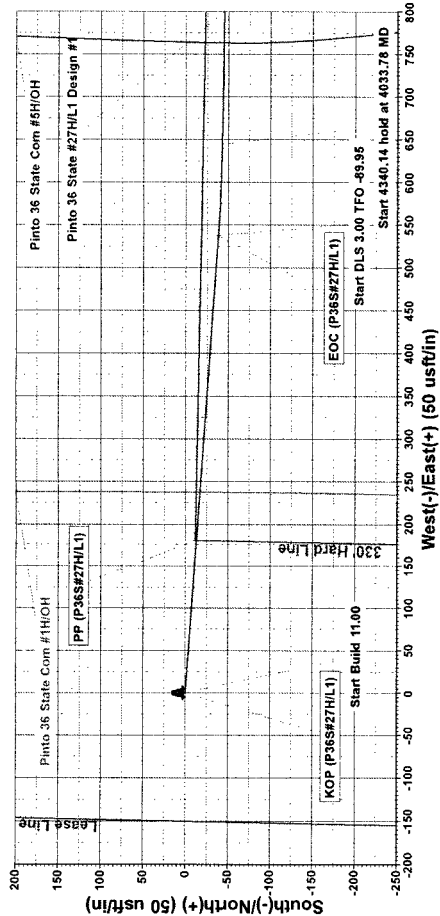
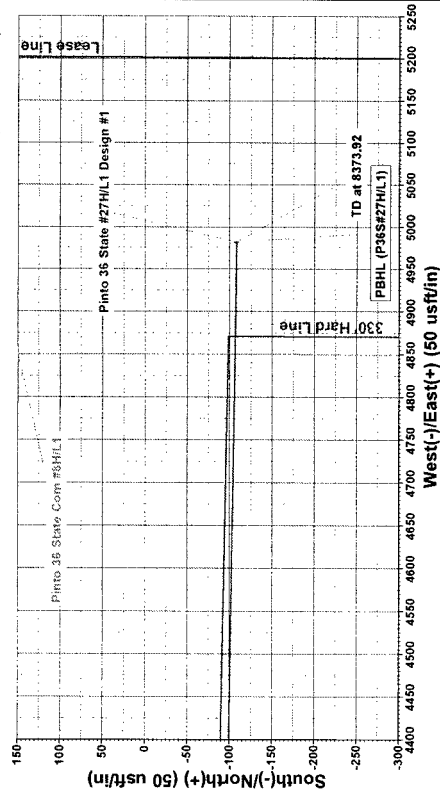
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,090.63	3,090.63	0.00	0.00	Start Build 11.00
3,926.99	3,611.18	-38.26	537.69	Start DLS 3.00 TFO -89.95
4,033.78	3,607.46	-42.85	644.29	Start 4340.14 hold at 4033.78 MD
8,373.92	3,456.01	-108.30	4,981.30	TD at 8373.92



COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Site: Pinto 36 State #27H
Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Plan: Design #1 (SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M; BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P)

Section Details

Sec	MD	Inc	Azi	TVD	+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	3090.83	0.00	0.00	3090.83	0.00	0.00	0.00	0.00	0.00
3	3826.99	92.00	94.07	3811.18	-38.26	537.89	11.00	94.07	538.39
4	4033.78	92.00	90.86	3607.46	-42.86	644.29	3.00	-89.95	645.07
5	8373.92	92.00	90.86	3456.01	-108.30	4981.30	0.00	4982.48	PBHL (P36S#27H/L1)



PROJECT DETAILS: Eddy County, NM (NAD-27 2015)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

Ground Elevation: 3505.00
RKB Elevation: KB @ 3523.00usft (Silver Oak 3)
Northing: 618315.60
Easting: 465356.10
Latitude: 32° 41' 59.309 N
Longitude: 104° 26' 45.432 W

Terra Directional Services LLC
3705 South County Road 1210, Midland, TX 79706
Phone: 432-618-1210





CONCHO

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 31 2017

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COG Operating LLC

Eddy County, NM (NAD-27 2015)

Pinto 36 State #27H

SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M

PP: 981' FSL, 330' FWL, Sec 36, T18S, R25E, Unit M

BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P

Design #1

Anticollision Report

26 January, 2017





TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1
Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference	Design #1		
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:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	1/26/2017		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	8,373.92	Design #1 (BHL: 990' FSL, 220' FEL, Sec	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Eddy County Offset Wells						
Pinto 36 State Com #1H - OH - OH	2,416.24	3,033.01	237.70	217.08	11.529	CC, ES, SF
Pinto 36 State Com #2H - OH - OH	5,057.81	2,986.24	1,090.49	1,074.13	66.623	CC, ES
Pinto 36 State Com #2H - OH - OH	5,600.00	2,995.67	1,217.81	1,196.67	57.609	SF
Pinto 36 State Com #3H - OH - OH	6,362.35	6,321.88	1,051.10	999.58	20.400	CC
Pinto 36 State Com #3H - OH - OH	6,400.00	6,322.00	1,051.78	999.42	20.088	ES
Pinto 36 State Com #3H - OH - OH	7,100.00	6,324.16	1,284.11	1,193.82	14.222	SF
Pinto 36 State Com #4H - OH - OH	7,691.37	3,349.23	696.56	660.45	19.285	CC, ES
Pinto 36 State Com #4H - OH - OH	7,800.00	3,351.91	704.98	668.13	19.133	SF
Pinto 36 State Com #5H - OH - OH	2,682.22	3,302.00	763.76	741.93	34.988	CC, ES
Pinto 36 State Com #5H - OH - OH	2,700.00	3,302.00	763.97	742.10	34.946	SF
Pinto 36 State Com #6H - OH - OH	5,591.32	3,227.52	879.91	859.52	43.162	CC
Pinto 36 State Com #6H - OH - OH	5,600.00	3,227.55	879.95	859.51	43.052	ES
Pinto 36 State Com #6H - OH - OH	5,900.00	3,228.53	932.48	909.28	40.202	SF
Pinto 36 State Com #7H						
SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O	6,903.55	3,326.74	789.91	758.98	25.536	CC, ES
SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O	7,100.00	3,325.40	813.97	781.41	24.995	SF
Pinto 36 State Com #8H						
SHL: 150' FSL, 330' FEL, Sec 36, T18S, R25E, Unit P - B	8,265.67	3,428.82	647.01	605.90	15.737	CC, ES
SHL: 150' FSL, 330' FEL, Sec 36, T18S, R25E, Unit P - B	8,300.00	3,428.41	647.92	606.58	15.672	SF
Pinto 36 State Com #9H						
Pinto 36 State Com #9H - Lateral #1 - Lateral #1	2,678.25	7,682.00	676.12	538.84	4.925	CC, ES, SF

Offset Design Eddy County Offset Wells - Pinto 36 State Com #1H - OH - OH													
Survey Program: 1851-MWD													
Reference		Offset		Semi Major Axis		Distance		Minimum Separation		Warning		Offset Site 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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Offset Well Error: 0.00 usft	
0.00	0.00	1,800.00	1,799.92	0.00	0.00	166.52	-857.10	205.47	2,017.62				
100.00	100.00	1,800.00	1,799.92	0.09	0.00	166.52	-857.10	205.47	1,928.16	1,925.64	2.51	767.522	

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #1H - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 1851-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
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
200.00	200.00	1,800.00	1,799.92	0.32	0.00	166.52	-857.10	205.47	1,839.78	1,837.32	2.46	747.815	
300.00	300.00	1,800.00	1,799.92	0.54	0.00	166.52	-857.10	205.47	1,752.66	1,750.25	2.41	726.855	
400.00	400.00	1,800.00	1,799.92	0.77	0.00	166.52	-857.10	205.47	1,666.98	1,664.62	2.37	704.308	
500.00	500.00	1,800.00	1,799.92	0.99	0.00	166.52	-857.10	205.47	1,582.99	1,580.66	2.33	679.735	
600.00	600.00	1,800.00	1,799.92	1.22	0.00	166.52	-857.10	205.47	1,500.96	1,498.66	2.30	652.599	
700.00	700.00	1,800.00	1,799.92	1.44	0.00	166.52	-857.10	205.47	1,421.23	1,418.94	2.28	622.309	
800.00	800.00	1,800.00	1,799.92	1.67	0.00	166.52	-857.10	205.47	1,344.21	1,341.93	2.28	588.328	
900.00	900.00	1,800.00	1,799.92	1.89	0.00	166.52	-857.10	205.47	1,270.40	1,268.09	2.31	550.363	
1,000.00	1,000.00	1,800.00	1,799.92	2.12	0.00	166.52	-857.10	205.47	1,200.39	1,198.03	2.36	508.619	
1,100.00	1,100.00	1,800.00	1,799.92	2.34	0.00	166.52	-857.10	205.47	1,134.88	1,132.43	2.45	464.016	
1,200.00	1,200.00	1,800.00	1,799.92	2.56	0.00	166.52	-857.10	205.47	1,074.69	1,072.12	2.57	418.234	
1,300.00	1,300.00	1,800.00	1,799.92	2.79	0.00	166.52	-857.10	205.47	1,020.77	1,018.04	2.73	373.468	
1,400.00	1,400.00	1,800.00	1,799.92	3.01	0.00	166.52	-857.10	205.47	974.16	971.23	2.93	331.973	
1,500.00	1,500.00	1,800.00	1,799.92	3.24	0.00	166.52	-857.10	205.47	935.96	932.79	3.17	295.590	
1,600.00	1,600.00	3,036.00	2,401.22	3.46	15.38	89.30	2.91	237.70	850.13	840.73	9.40	90.459	
1,700.00	1,700.00	3,036.00	2,401.22	3.69	15.38	89.30	2.91	237.70	754.63	744.89	9.74	77.457	
1,800.00	1,800.00	3,036.00	2,401.22	3.91	15.38	89.30	2.91	237.70	660.48	650.24	10.23	64.548	
1,900.00	1,900.00	3,036.00	2,401.22	4.14	15.38	89.30	2.91	237.70	568.32	557.38	10.94	51.935	
2,000.00	2,000.00	3,036.00	2,401.22	4.36	15.38	89.30	2.91	237.70	479.32	467.32	11.99	39.963	
2,100.00	2,100.00	3,036.00	2,401.22	4.59	15.38	89.30	2.91	237.70	395.60	382.04	13.56	29.170	
2,200.00	2,200.00	3,036.00	2,401.22	4.81	15.38	89.30	2.91	237.70	321.34	305.51	15.83	20.300	
2,300.00	2,300.00	3,033.95	2,401.23	5.04	15.34	89.79	0.86	237.70	264.60	245.99	18.61	14.221	
2,400.00	2,400.00	3,033.15	2,401.24	5.26	15.33	89.99	0.06	237.70	238.25	217.71	20.54	11.601	
2,416.24	2,416.24	3,033.01	2,401.24	5.30	15.33	90.02	-0.08	237.70	237.70	217.08	20.62	11.529 CC, ES, SF	
2,500.00	2,500.00	3,032.28	2,401.24	5.49	15.32	90.20	-0.82	237.70	252.02	232.22	19.81	12.724	
2,600.00	2,600.00	3,031.32	2,401.25	5.71	15.30	90.43	-1.77	237.70	300.44	283.11	17.34	17.330	
2,700.00	2,700.00	3,030.26	2,401.26	5.94	15.28	90.68	-2.83	237.70	370.16	355.22	14.93	24.788	
2,800.00	2,800.00	3,029.10	2,401.27	6.16	15.27	90.96	-3.99	237.70	451.40	438.26	13.14	34.362	
2,900.00	2,900.00	3,027.80	2,401.29	6.39	15.25	91.27	-5.29	237.69	538.99	527.11	11.87	45.397	
3,000.00	3,000.00	3,026.36	2,401.30	6.61	15.22	91.62	-6.73	237.69	630.27	619.29	10.98	57.402	
3,090.63	3,090.63	3,024.89	2,401.32	6.81	15.20	91.98	-8.20	237.69	715.02	704.64	10.39	68.831	
3,100.00	3,100.00	3,024.72	2,401.32	6.83	15.20	-1.95	-8.37	237.69	723.84	713.51	10.33	70.077	
3,150.00	3,149.87	3,023.48	2,401.34	6.93	15.18	-1.32	-9.61	237.69	770.11	760.12	9.99	77.103	
3,200.00	3,199.20	3,021.66	2,401.36	7.04	15.15	-0.81	-11.43	237.69	814.95	805.36	9.60	84.907	
3,250.00	3,247.53	3,019.21	2,401.39	7.15	15.11	-0.38	-13.88	237.68	858.22	849.03	9.19	93.402	
3,300.00	3,294.41	3,016.13	2,401.44	7.28	15.06	0.01	-16.96	237.68	899.75	890.98	8.77	102.593	
3,350.00	3,339.41	3,012.39	2,401.50	7.43	15.00	0.36	-20.70	237.67	939.42	931.06	8.36	112.433	
3,400.00	3,382.13	3,008.01	2,401.58	7.64	14.93	0.70	-25.08	237.65	977.11	969.15	7.96	122.781	
3,450.00	3,422.16	3,003.01	2,401.68	7.90	14.85	1.03	-30.08	237.64	1,012.71	1,005.11	7.59	133.339	
3,500.00	3,459.14	2,997.43	2,401.80	8.25	14.76	1.34	-35.66	237.62	1,046.11	1,038.83	7.29	143.594	
3,550.00	3,492.72	2,991.34	2,401.95	8.70	14.66	1.65	-41.74	237.59	1,077.23	1,070.18	7.05	152.776	
3,600.00	3,522.61	2,984.85	2,402.13	9.26	14.56	1.94	-48.24	237.55	1,105.97	1,099.05	6.92	159.931	
3,650.00	3,548.51	2,978.05	2,402.34	9.94	14.45	2.22	-55.03	237.51	1,132.26	1,125.36	6.90	164.174	
3,700.00	3,570.20	2,971.09	2,402.57	10.74	14.34	2.50	-61.98	237.46	1,156.04	1,149.03	7.00	165.044	
3,750.00	3,587.48	2,964.11	2,402.82	11.65	14.23	2.76	-68.96	237.41	1,177.23	1,170.00	7.24	162.705	
3,800.00	3,600.18	2,957.27	2,403.09	12.65	14.12	3.00	-75.80	237.35	1,195.80	1,188.22	7.58	157.809	
3,850.00	3,608.18	2,950.70	2,403.36	13.72	14.01	3.23	-82.36	237.29	1,211.69	1,203.67	8.01	151.191	
3,900.00	3,611.43	2,944.54	2,403.64	14.84	13.92	3.44	-88.51	237.23	1,224.86	1,216.33	8.53	143.620	
3,926.99	3,611.18	2,942.00	2,403.76	15.47	13.87	3.52	-91.05	237.21	1,230.84	1,222.01	8.83	139.433	

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
KB @ 3523.00usft (Silver Oak 3)
KB @ 3523.00usft (Silver Oak 3)
Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #1H - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 1851-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N-S (usft)	+E-W (usft)					
4,000.00	3,608.64	2,938.85	2,403.91	17.19	13.82	3.07	-94.20	237.17	1,248.03	1,238.28	9.76	127.927	
4,033.78	3,607.46	2,938.46	2,403.92	18.01	13.81	2.76	-94.59	237.17	1,257.39	1,247.19	10.20	123.234	
4,100.00	3,605.15	2,938.27	2,403.93	19.64	13.81	2.77	-94.77	237.17	1,278.17	1,267.08	11.08	115.348	
4,200.00	3,601.66	2,938.00	2,403.95	22.17	13.81	2.78	-95.05	237.16	1,315.24	1,302.87	12.37	106.321	
4,300.00	3,598.17	2,937.72	2,403.96	24.74	13.80	2.79	-95.32	237.16	1,358.69	1,345.10	13.59	100.011	
4,400.00	3,594.68	2,937.45	2,403.97	27.35	13.80	2.80	-95.60	237.16	1,407.90	1,393.20	14.71	95.742	
4,500.00	3,591.19	2,937.18	2,403.98	29.98	13.79	2.82	-95.87	237.16	1,462.31	1,446.59	15.72	93.010	
4,600.00	3,587.70	2,936.91	2,404.00	32.64	13.79	2.83	-96.14	237.15	1,521.35	1,504.71	16.64	91.451	
4,700.00	3,584.21	2,936.64	2,404.01	35.31	13.78	2.84	-96.40	237.15	1,584.51	1,567.06	17.45	90.799	
4,800.00	3,580.72	2,936.38	2,404.02	38.00	13.78	2.86	-96.67	237.15	1,651.31	1,633.14	18.17	90.860	
4,900.00	3,577.23	2,936.11	2,404.03	40.69	13.77	2.87	-96.93	237.14	1,721.33	1,702.52	18.82	91.486	
5,000.00	3,573.74	2,935.85	2,404.05	43.39	13.77	2.88	-97.19	237.14	1,794.20	1,774.81	19.38	92.569	
5,100.00	3,570.25	2,935.59	2,404.06	46.10	13.76	2.89	-97.45	237.14	1,869.57	1,849.69	19.88	94.025	
5,200.00	3,566.76	2,935.33	2,404.07	48.81	13.76	2.91	-97.71	237.14	1,947.17	1,926.84	20.33	95.788	
5,300.00	3,563.27	2,935.08	2,404.08	51.53	13.75	2.92	-97.96	237.13	2,026.73	2,006.00	20.72	97.807	
5,400.00	3,559.78	2,934.82	2,404.10	54.25	13.75	2.93	-98.22	237.13	2,108.03	2,086.96	21.07	100.042	
5,500.00	3,556.29	2,934.57	2,404.11	56.98	13.75	2.94	-98.47	237.13	2,190.88	2,169.49	21.38	102.458	
5,600.00	3,552.80	2,934.32	2,404.12	59.71	13.74	2.95	-98.72	237.13	2,275.10	2,253.44	21.66	105.031	
5,700.00	3,549.31	2,934.07	2,404.13	62.44	13.74	2.97	-98.97	237.12	2,360.56	2,338.65	21.91	107.736	
5,800.00	3,545.83	2,933.82	2,404.14	65.17	13.73	2.98	-99.22	237.12	2,447.12	2,424.99	22.13	110.558	
5,900.00	3,542.34	2,933.58	2,404.15	67.91	13.73	2.99	-99.46	237.12	2,534.67	2,512.34	22.34	113.479	
6,000.00	3,538.85	2,933.33	2,404.17	70.64	13.72	3.00	-99.70	237.11	2,623.11	2,600.60	22.52	116.488	
6,100.00	3,535.36	2,933.09	2,404.18	73.38	13.72	3.01	-99.95	237.11	2,712.36	2,689.87	22.68	119.573	
6,200.00	3,531.87	2,932.85	2,404.19	76.12	13.72	3.02	-100.19	237.11	2,802.33	2,779.49	22.83	122.726	
6,300.00	3,528.38	2,932.61	2,404.20	78.86	13.71	3.03	-100.43	237.11	2,892.96	2,869.99	22.97	125.938	
6,400.00	3,524.89	2,932.38	2,404.21	81.61	13.71	3.05	-100.66	237.10	2,984.18	2,961.09	23.10	129.203	
6,500.00	3,521.40	2,932.14	2,404.22	84.35	13.70	3.06	-100.90	237.10	3,075.96	3,052.74	23.21	132.513	
6,600.00	3,517.91	2,931.91	2,404.23	87.09	13.70	3.07	-101.13	237.10	3,168.23	3,144.91	23.32	135.866	
6,700.00	3,514.42	2,931.67	2,404.24	89.84	13.70	3.08	-101.36	237.10	3,260.95	3,237.54	23.42	139.254	
6,800.00	3,510.93	2,931.44	2,404.25	92.58	13.69	3.09	-101.60	237.09	3,354.10	3,330.59	23.51	142.676	
6,900.00	3,507.44	2,931.21	2,404.27	95.33	13.69	3.10	-101.82	237.09	3,447.63	3,424.03	23.59	146.127	
7,000.00	3,503.95	2,930.98	2,404.28	98.08	13.68	3.11	-102.05	237.09	3,541.51	3,517.84	23.67	149.603	
7,100.00	3,500.46	2,930.76	2,404.29	100.82	13.68	3.12	-102.28	237.09	3,635.72	3,611.97	23.75	153.103	
7,200.00	3,496.97	2,930.53	2,404.30	103.57	13.68	3.13	-102.50	237.08	3,730.23	3,706.41	23.82	156.623	
7,300.00	3,493.48	2,930.31	2,404.31	106.32	13.67	3.14	-102.73	237.08	3,825.02	3,801.14	23.88	160.161	
7,400.00	3,489.99	2,930.09	2,404.32	109.07	13.67	3.16	-102.95	237.08	3,920.07	3,896.12	23.94	163.716	
7,500.00	3,486.50	2,929.87	2,404.33	111.82	13.66	3.17	-103.17	237.08	4,015.35	3,991.35	24.00	167.285	
7,600.00	3,483.02	2,929.65	2,404.34	114.57	13.66	3.18	-103.39	237.07	4,110.87	4,086.81	24.06	170.866	
7,700.00	3,479.53	2,929.43	2,404.35	117.32	13.66	3.19	-103.61	237.07	4,206.59	4,182.48	24.11	174.459	
7,800.00	3,476.04	2,929.21	2,404.36	120.07	13.65	3.20	-103.82	237.07	4,302.50	4,278.34	24.16	178.061	
7,900.00	3,472.55	2,929.00	2,404.37	122.82	13.65	3.21	-104.04	237.07	4,398.60	4,374.39	24.21	181.672	
8,000.00	3,469.06	2,928.78	2,404.38	125.57	13.64	3.22	-104.25	237.07	4,494.87	4,470.61	24.26	185.290	
8,100.00	3,465.57	2,928.57	2,404.39	128.32	13.64	3.23	-104.46	237.06	4,591.30	4,566.99	24.30	188.915	
8,200.00	3,462.08	2,928.36	2,404.40	131.07	13.64	3.24	-104.67	237.06	4,687.87	4,663.53	24.35	192.544	
8,300.00	3,458.59	2,928.15	2,404.41	133.83	13.63	3.25	-104.88	237.06	4,784.59	4,760.20	24.39	196.178	
8,373.92	3,456.01	2,928.00	2,404.42	135.86	13.63	3.25	-105.04	237.06	4,856.17	4,831.75	24.42	198.866	



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Corn #2H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 1934-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (')	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
0.00	0.00	1,897.00	1,896.86	0.00	0.00	119.94	-872.19	1,514.30	2,593.87					
100.00	100.00	1,897.00	1,896.86	0.09	0.00	119.94	-872.19	1,514.30	2,520.87	2,518.84	2.04	1,237.838		
200.00	200.00	1,897.00	1,896.86	0.32	0.00	119.94	-872.19	1,514.30	2,449.78	2,447.81	1.97	1,241.300		
300.00	300.00	1,897.00	1,896.86	0.54	0.00	119.94	-872.19	1,514.30	2,380.77	2,378.84	1.92	1,237.369		
400.00	400.00	1,897.00	1,896.86	0.77	0.00	119.94	-872.19	1,514.30	2,314.02	2,312.13	1.89	1,223.255		
500.00	500.00	1,897.00	1,896.86	0.99	0.00	119.94	-872.19	1,514.30	2,249.74	2,247.86	1.88	1,196.459		
600.00	600.00	1,897.00	1,896.86	1.22	0.00	119.94	-872.19	1,514.30	2,188.14	2,186.24	1.89	1,155.533		
700.00	700.00	1,897.00	1,896.86	1.44	0.00	119.94	-872.19	1,514.30	2,129.45	2,127.52	1.93	1,100.787		
800.00	800.00	1,897.00	1,896.86	1.67	0.00	119.94	-872.19	1,514.30	2,073.93	2,071.93	2.00	1,034.535		
900.00	900.00	1,897.00	1,896.86	1.89	0.00	119.94	-872.19	1,514.30	2,021.84	2,019.73	2.10	960.657		
1,000.00	1,000.00	1,897.00	1,896.86	2.12	0.00	119.94	-872.19	1,514.30	1,973.44	1,971.20	2.23	883.653		
1,100.00	1,100.00	1,897.00	1,896.86	2.34	0.00	119.94	-872.19	1,514.30	1,929.01	1,926.62	2.39	807.663		
1,200.00	1,200.00	1,897.00	1,896.86	2.56	0.00	119.94	-872.19	1,514.30	1,888.84	1,886.27	2.57	735.843		
1,300.00	1,300.00	1,897.00	1,896.86	2.79	0.00	119.94	-872.19	1,514.30	1,853.20	1,850.43	2.77	670.193		
1,400.00	1,400.00	1,897.00	1,896.86	3.01	0.00	119.94	-872.19	1,514.30	1,822.35	1,819.37	2.98	611.697		
1,500.00	1,500.00	1,897.00	1,896.86	3.24	0.00	119.94	-872.19	1,514.30	1,796.55	1,793.35	3.20	560.595		
1,600.00	1,600.00	1,897.00	1,896.86	3.46	0.00	119.94	-872.19	1,514.30	1,776.01	1,772.57	3.44	516.653		
1,700.00	1,700.00	1,897.00	1,896.86	3.69	0.00	119.94	-872.19	1,514.30	1,760.92	1,757.25	3.67	479.375		
1,800.00	1,800.00	1,897.00	1,896.86	3.91	0.00	119.94	-872.19	1,514.30	1,751.42	1,747.51	3.91	448.146		
1,900.00	1,900.00	3,133.34	2,456.21	4.14	15.77	89.64	10.19	1,631.01	1,729.83	1,711.05	18.77	92.136		
2,000.00	2,000.00	3,129.61	2,456.36	4.36	15.71	89.77	6.46	1,630.98	1,699.13	1,679.92	19.22	88.426		
2,100.00	2,100.00	3,125.90	2,456.50	4.59	15.65	89.90	2.76	1,630.95	1,673.85	1,654.22	19.62	85.292		
2,200.00	2,200.00	3,122.22	2,456.64	4.81	15.59	90.03	-0.92	1,630.93	1,654.22	1,634.23	19.99	82.736		
2,300.00	2,300.00	3,118.43	2,456.79	5.04	15.53	90.17	-4.72	1,630.90	1,640.46	1,620.15	20.31	80.764		
2,400.00	2,400.00	3,113.30	2,456.99	5.26	15.45	90.35	-9.84	1,630.86	1,632.71	1,612.15	20.55	79.435		
2,477.17	2,477.17	3,109.00	2,457.17	5.44	15.38	90.50	-14.14	1,630.82	1,630.89	1,610.19	20.69	78.813		
2,500.00	2,500.00	3,107.66	2,457.23	5.49	15.36	90.54	-15.47	1,630.81	1,631.05	1,610.32	20.73	78.697		
2,600.00	2,600.00	3,101.43	2,457.50	5.71	15.26	90.76	-21.69	1,630.75	1,635.49	1,614.67	20.82	78.547		
2,700.00	2,700.00	3,094.52	2,457.81	5.94	15.15	91.00	-28.60	1,630.68	1,646.00	1,625.16	20.84	78.980		
2,800.00	2,800.00	3,086.80	2,458.19	6.16	15.03	91.28	-36.31	1,630.59	1,662.44	1,641.66	20.78	79.992		
2,900.00	2,900.00	3,078.12	2,458.63	6.39	14.90	91.58	-44.98	1,630.48	1,684.64	1,664.00	20.65	81.585		
3,000.00	3,000.00	3,068.30	2,459.17	6.61	14.74	91.92	-54.79	1,630.33	1,712.38	1,691.94	20.44	83.760		
3,090.63	3,090.63	3,058.20	2,459.76	6.81	14.58	92.28	-64.86	1,630.17	1,742.07	1,721.87	20.20	86.243		
3,100.00	3,100.00	3,057.07	2,459.83	6.83	14.57	-1.74	-65.99	1,630.15	1,745.30	1,725.13	20.17	86.541		
3,150.00	3,149.87	3,050.51	2,460.23	6.93	14.46	-1.47	-72.54	1,630.03	1,760.59	1,740.61	19.97	88.156		
3,200.00	3,199.20	3,043.02	2,460.71	7.04	14.35	-1.19	-80.01	1,629.89	1,772.56	1,752.81	19.74	89.776		
3,250.00	3,247.53	3,034.64	2,461.27	7.15	14.22	-0.89	-88.37	1,629.72	1,781.17	1,761.67	19.50	91.361		
3,300.00	3,294.41	3,025.58	2,461.91	7.28	14.07	-0.59	-97.40	1,629.52	1,786.38	1,767.15	19.23	92.893		
3,350.00	3,339.41	3,018.70	2,462.40	7.43	13.96	-0.37	-104.27	1,629.36	1,788.18	1,769.20	18.98	94.203		
3,400.00	3,382.13	3,011.85	2,462.89	7.64	13.84	-0.15	-111.10	1,629.18	1,786.57	1,767.84	18.73	95.384		
3,450.00	3,422.16	3,005.12	2,463.38	7.90	13.73	0.06	-117.81	1,629.01	1,781.54	1,763.06	18.48	96.411		
3,500.00	3,459.14	2,998.60	2,463.85	8.25	13.62	0.28	-124.30	1,628.82	1,773.12	1,754.89	18.23	97.257		
3,550.00	3,492.72	2,992.38	2,464.30	8.70	13.52	0.49	-130.51	1,628.64	1,761.34	1,743.35	17.99	97.899		
3,600.00	3,522.61	2,986.52	2,464.73	9.26	13.42	0.71	-136.35	1,628.46	1,746.24	1,728.48	17.76	98.310		
3,650.00	3,548.51	2,981.09	2,465.13	9.94	13.33	0.93	-141.76	1,628.29	1,727.88	1,710.34	17.55	98.469		
3,700.00	3,570.20	2,976.13	2,465.49	10.74	13.24	1.17	-146.70	1,628.12	1,706.33	1,688.98	17.35	98.360		
3,750.00	3,587.48	2,971.69	2,465.82	11.65	13.17	1.41	-151.13	1,627.97	1,681.67	1,664.50	17.17	97.970		
3,800.00	3,600.18	2,967.79	2,466.10	12.65	13.10	1.67	-155.02	1,627.83	1,653.99	1,636.99	17.00	97.295		
3,850.00	3,608.18	2,964.45	2,466.35	13.72	13.05	1.95	-158.34	1,627.71	1,623.41	1,606.56	16.85	96.335		



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #2H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 1934-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)	
3,900.00	3,611.43	2,961.69	2,466.55	14.84	13.00	2.26	-161.10	1,627.61	1,590.05	1,573.32		16.72	95.096	
3,926.99	3,611.18	2,960.43	2,466.65	15.47	12.98	2.45	-162.35	1,627.57	1,570.93	1,554.26		16.67	94.260	
4,000.00	3,608.64	2,959.24	2,466.73	17.19	12.96	4.64	-163.54	1,627.52	1,519.10	1,502.61		16.49	92.150	
4,033.78	3,607.46	2,959.98	2,466.68	18.01	12.97	5.53	-162.80	1,627.55	1,495.77	1,479.35		16.41	91.125	
4,100.00	3,605.15	2,962.16	2,466.52	19.64	13.01	5.41	-160.63	1,627.63	1,451.26	1,434.97		16.29	89.091	
4,200.00	3,601.66	2,965.29	2,466.29	22.17	13.06	5.25	-157.51	1,627.74	1,387.33	1,371.22		16.11	86.118	
4,300.00	3,598.17	2,968.25	2,466.07	24.74	13.11	5.09	-154.56	1,627.85	1,327.85	1,311.91		15.94	83.288	
4,400.00	3,594.68	2,971.05	2,465.86	27.35	13.16	4.95	-151.77	1,627.95	1,273.46	1,257.67		15.79	80.635	
4,500.00	3,591.19	2,973.70	2,465.67	29.98	13.20	4.81	-149.13	1,628.04	1,224.83	1,209.16		15.67	78.189	
4,600.00	3,587.70	2,976.21	2,465.48	32.64	13.24	4.68	-146.62	1,628.12	1,182.66	1,167.09		15.57	75.969	
4,700.00	3,584.21	2,978.60	2,465.31	35.31	13.28	4.55	-144.25	1,628.20	1,147.67	1,132.16		15.52	73.958	
4,800.00	3,580.72	2,980.87	2,465.14	38.00	13.32	4.43	-141.98	1,628.28	1,120.54	1,105.00		15.55	72.071	
4,900.00	3,577.23	2,983.03	2,464.98	40.69	13.36	4.32	-139.83	1,628.35	1,101.85	1,086.14		15.71	70.148	
5,000.00	3,573.74	2,985.09	2,464.83	43.39	13.39	4.21	-137.78	1,628.41	1,092.03	1,075.97		16.06	68.000	
5,057.81	3,571.72	2,986.24	2,464.75	44.96	13.41	4.15	-136.63	1,628.45	1,090.49	1,074.13		16.37	66.623 CC, ES	
5,100.00	3,570.25	2,987.05	2,464.69	46.10	13.43	4.11	-135.82	1,628.48	1,091.31	1,074.67		16.64	65.572	
5,200.00	3,566.76	2,988.93	2,464.55	48.81	13.46	4.01	-133.94	1,628.53	1,099.72	1,082.28		17.44	63.064	
5,300.00	3,563.27	2,990.73	2,464.42	51.53	13.49	3.91	-132.15	1,628.59	1,117.06	1,098.69		18.37	60.817	
5,400.00	3,559.78	2,992.45	2,464.30	54.25	13.52	3.82	-130.44	1,628.64	1,142.90	1,123.57		19.34	59.102	
5,500.00	3,556.29	2,994.09	2,464.18	56.98	13.54	3.74	-128.80	1,628.69	1,176.71	1,156.43		20.28	58.033	
5,600.00	3,552.80	2,995.67	2,464.06	59.71	13.57	3.65	-127.22	1,628.74	1,217.81	1,196.67		21.14	57.609 SF	
5,700.00	3,549.31	2,997.19	2,463.95	62.44	13.60	3.57	-125.71	1,628.78	1,265.48	1,243.58		21.90	57.775	
5,800.00	3,545.83	2,998.65	2,463.85	65.17	13.62	3.50	-124.26	1,628.82	1,319.03	1,296.47		22.56	58.455	
5,900.00	3,542.34	3,000.05	2,463.75	67.91	13.64	3.42	-122.87	1,628.86	1,377.77	1,354.64		23.13	59.574	
6,000.00	3,538.85	3,001.39	2,463.65	70.64	13.67	3.35	-121.52	1,628.90	1,441.05	1,417.45		23.60	61.065	
6,100.00	3,535.36	3,002.69	2,463.55	73.38	13.69	3.29	-120.23	1,628.94	1,508.31	1,484.32		23.99	62.969	
6,200.00	3,531.87	3,003.94	2,463.46	76.12	13.71	3.22	-118.98	1,628.97	1,579.05	1,554.73		24.32	64.937	
6,300.00	3,528.38	3,005.14	2,463.38	78.86	13.73	3.16	-117.78	1,629.01	1,652.81	1,628.22		24.58	67.229	
6,400.00	3,524.89	3,006.30	2,463.29	81.61	13.75	3.10	-116.62	1,629.04	1,729.20	1,704.40		24.81	69.710	
6,500.00	3,521.40	3,007.43	2,463.21	84.35	13.77	3.04	-115.51	1,629.07	1,807.90	1,782.91		24.99	72.354	
6,600.00	3,517.91	3,008.51	2,463.13	87.09	13.79	2.98	-114.43	1,629.10	1,888.62	1,863.48		25.14	75.136	
6,700.00	3,514.42	3,009.56	2,463.06	89.84	13.80	2.93	-113.38	1,629.12	1,971.10	1,945.84		25.26	78.037	
6,800.00	3,510.93	3,010.57	2,462.99	92.58	13.82	2.87	-112.37	1,629.15	2,055.14	2,029.78		25.36	81.041	
6,900.00	3,507.44	3,011.55	2,462.92	95.33	13.84	2.82	-111.39	1,629.18	2,140.55	2,115.11		25.44	84.133	
7,000.00	3,503.95	3,012.50	2,462.85	98.08	13.85	2.77	-110.45	1,629.20	2,227.17	2,201.66		25.51	87.301	
7,100.00	3,500.46	3,026.00	2,461.88	100.82	14.08	2.06	-96.99	1,629.53	2,314.93	2,289.26		25.67	90.180	
7,200.00	3,496.97	3,026.00	2,461.88	103.57	14.08	2.06	-96.99	1,629.53	2,403.58	2,377.87		25.71	93.477	
7,300.00	3,493.48	3,026.00	2,461.88	106.32	14.08	2.06	-96.99	1,629.53	2,493.10	2,467.35		25.75	96.828	
7,400.00	3,489.99	3,026.00	2,461.88	109.07	14.08	2.06	-96.99	1,629.53	2,583.38	2,557.60		25.78	100.225	
7,500.00	3,486.50	3,026.00	2,461.88	111.82	14.08	2.06	-96.99	1,629.53	2,674.35	2,648.56		25.80	103.663	
7,600.00	3,483.02	3,026.00	2,461.88	114.57	14.08	2.06	-96.99	1,629.53	2,765.95	2,740.14		25.82	107.137	
7,700.00	3,479.53	3,026.00	2,461.88	117.32	14.08	2.06	-96.99	1,629.53	2,858.11	2,832.28		25.83	110.643	
7,800.00	3,476.04	3,026.00	2,461.88	120.07	14.08	2.06	-96.99	1,629.53	2,950.79	2,924.94		25.84	114.177	
7,900.00	3,472.55	3,026.00	2,461.88	122.82	14.08	2.06	-96.99	1,629.53	3,043.92	3,018.07		25.85	117.736	
8,000.00	3,469.06	3,026.00	2,461.88	125.57	14.08	2.06	-96.99	1,629.53	3,137.48	3,111.62		25.86	121.316	
8,100.00	3,465.57	3,026.00	2,461.88	128.32	14.08	2.06	-96.99	1,629.53	3,231.43	3,205.56		25.87	124.915	
8,200.00	3,462.08	3,026.00	2,461.88	131.07	14.08	2.06	-96.99	1,629.53	3,325.72	3,299.85		25.87	128.530	
8,300.00	3,458.59	3,026.00	2,461.88	133.83	14.08	2.06	-96.99	1,629.53	3,420.34	3,394.46		25.88	132.161	
8,373.92	3,456.01	3,026.00	2,461.88	135.86	14.08	2.06	-96.99	1,629.53	3,490.48	3,464.60		25.88	134.852	

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #3H - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 124-INC, 1779-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)	
0.00	0.00	6,143.00	2,429.05	0.00	105.56	88.69	67.36	2,936.30	3,837.00					
100.00	100.00	6,143.00	2,429.05	0.09	105.56	88.69	67.36	2,936.30	3,773.43	3,687.62	85.81 43.976			
200.00	200.00	6,145.78	2,429.18	0.32	105.59	88.74	64.58	2,936.25	3,711.46	3,624.43	87.03 42.646			
300.00	300.00	6,151.14	2,429.44	0.54	105.65	88.84	59.23	2,936.17	3,651.17	3,562.87	88.31 41.346			
400.00	400.00	6,156.39	2,429.69	0.77	105.72	88.95	53.98	2,936.09	3,592.65	3,503.04	89.62 40.089			
500.00	500.00	6,161.54	2,429.93	0.99	105.78	89.05	48.84	2,936.01	3,535.99	3,445.03	90.95 38.878			
600.00	600.00	6,166.58	2,430.17	1.22	105.84	89.15	43.81	2,935.94	3,481.26	3,388.95	92.31 37.712			
700.00	700.00	6,171.52	2,430.40	1.44	105.89	89.24	38.87	2,935.86	3,428.58	3,334.88	93.69 36.594			
800.00	800.00	6,176.37	2,430.62	1.67	105.95	89.34	34.03	2,935.79	3,378.02	3,282.94	95.08 35.527			
900.00	900.00	6,181.12	2,430.84	1.89	106.01	89.43	29.29	2,935.73	3,329.70	3,233.21	96.48 34.511			
1,000.00	1,000.00	6,185.78	2,431.05	2.12	106.06	89.52	24.63	2,935.66	3,283.70	3,185.82	97.88 33.549			
1,100.00	1,100.00	6,190.35	2,431.25	2.34	106.12	89.61	20.07	2,935.60	3,240.13	3,140.87	99.26 32.643			
1,200.00	1,200.00	6,194.83	2,431.45	2.56	106.17	89.70	15.59	2,935.53	3,199.09	3,098.47	100.62 31.793			
1,300.00	1,300.00	6,199.23	2,431.64	2.79	106.22	89.78	11.20	2,935.47	3,160.68	3,058.73	101.95 31.002			
1,400.00	1,400.00	6,203.54	2,431.83	3.01	106.27	89.87	6.88	2,935.42	3,124.99	3,021.74	103.24 30.269			
1,500.00	1,500.00	6,207.78	2,432.01	3.24	106.32	89.95	2.65	2,935.36	3,092.11	2,987.63	104.48 29.595			
1,600.00	1,600.00	6,211.94	2,432.19	3.46	106.37	90.03	-1.51	2,935.30	3,062.14	2,956.48	105.66 28.981			
1,700.00	1,700.00	6,216.03	2,432.36	3.69	106.42	90.11	-5.59	2,935.25	3,035.17	2,928.40	106.77 28.427			
1,800.00	1,800.00	6,220.04	2,432.53	3.91	106.47	90.19	-9.60	2,935.20	3,011.28	2,903.47	107.80 27.933			
1,900.00	1,900.00	6,223.98	2,432.69	4.14	106.51	90.26	-13.53	2,935.15	2,990.53	2,881.78	108.75 27.499			
2,000.00	2,000.00	6,227.85	2,432.85	4.36	106.56	90.34	-17.40	2,935.10	2,973.00	2,863.39	109.61 27.124			
2,100.00	2,100.00	6,231.66	2,433.01	4.59	106.60	90.41	-21.20	2,935.05	2,958.74	2,848.38	110.36 26.810			
2,200.00	2,200.00	6,236.00	2,433.18	4.81	106.65	90.50	-25.54	2,935.00	2,947.80	2,836.79	111.01 26.554			
2,300.00	2,300.00	6,239.24	2,433.31	5.04	106.69	90.56	-28.77	2,934.96	2,940.21	2,828.67	111.54 26.360			
2,400.00	2,400.00	6,243.04	2,433.46	5.26	106.74	90.64	-32.57	2,934.91	2,936.01	2,824.05	111.96 26.224			
2,473.57	2,473.57	6,245.79	2,433.57	5.43	106.77	90.69	-35.32	2,934.88	2,935.09	2,822.90	112.19 26.161			
2,500.00	2,500.00	6,246.77	2,433.61	5.49	106.78	90.71	-36.30	2,934.87	2,935.21	2,822.95	112.26 26.146			
2,600.00	2,600.00	6,250.44	2,433.75	5.71	106.83	90.78	-39.97	2,934.83	2,937.81	2,825.37	112.45 26.127			
2,700.00	2,700.00	6,254.05	2,433.89	5.94	106.87	90.85	-43.58	2,934.78	2,943.80	2,831.30	112.51 26.166			
2,800.00	2,800.00	6,257.59	2,434.03	6.16	106.92	90.92	-47.12	2,934.74	2,953.16	2,840.71	112.45 26.262			
2,900.00	2,900.00	6,261.08	2,434.16	6.39	106.96	90.99	-50.60	2,934.70	2,965.87	2,853.59	112.28 26.416			
3,000.00	3,000.00	6,264.51	2,434.29	6.61	107.00	91.05	-54.02	2,934.66	2,981.86	2,869.88	111.99 26.626			
3,090.63	3,090.63	6,267.56	2,434.40	6.81	107.04	91.11	-57.08	2,934.62	2,999.17	2,887.53	111.64 26.866			
3,100.00	3,100.00	6,267.88	2,434.42	6.83	107.04	-2.94	-57.40	2,934.62	3,001.02	2,889.43	111.59 26.893			
3,150.00	3,149.87	6,269.72	2,434.48	6.93	107.06	-2.86	-59.23	2,934.60	3,008.61	2,897.28	111.33 27.024			
3,200.00	3,199.20	6,271.77	2,434.56	7.04	107.09	-2.80	-61.28	2,934.57	3,012.25	2,901.20	111.04 27.127			
3,250.00	3,247.53	6,274.02	2,434.64	7.15	107.11	-2.76	-63.53	2,934.55	3,011.93	2,901.19	110.74 27.199			
3,300.00	3,294.41	6,276.45	2,434.73	7.28	107.14	-2.74	-65.96	2,934.52	3,007.64	2,897.24	110.41 27.242			
3,350.00	3,339.41	6,279.04	2,434.82	7.43	107.18	-2.73	-68.54	2,934.49	2,999.42	2,889.36	110.06 27.252			
3,400.00	3,382.13	6,281.75	2,434.92	7.64	107.21	-2.74	-71.26	2,934.46	2,987.31	2,877.60	109.70 27.231			
3,450.00	3,422.16	6,284.58	2,435.02	7.90	107.24	-2.77	-74.08	2,934.43	2,971.36	2,862.02	109.33 27.177			
3,500.00	3,459.14	6,287.49	2,435.13	8.25	107.28	-2.83	-76.99	2,934.40	2,951.66	2,842.70	108.96 27.090			
3,550.00	3,492.72	6,290.45	2,435.23	8.70	107.31	-2.91	-79.95	2,934.36	2,928.33	2,819.75	108.58 26.968			
3,600.00	3,522.61	6,293.45	2,435.34	9.26	107.35	-3.02	-82.95	2,934.33	2,901.49	2,793.28	108.21 26.813			
3,650.00	3,548.51	6,296.46	2,435.44	9.94	107.39	-3.17	-85.96	2,934.30	2,871.29	2,763.44	107.85 26.623			
3,700.00	3,570.20	6,299.46	2,435.54	10.74	107.42	-3.37	-88.95	2,934.26	2,837.92	2,730.42	107.50 26.399			
3,750.00	3,587.48	6,302.41	2,435.64	11.65	107.46	-3.64	-91.90	2,934.23	2,801.56	2,694.39	107.17 26.142			
3,800.00	3,600.18	6,305.30	2,435.74	12.65	107.49	-4.01	-94.79	2,934.20	2,762.44	2,655.59	106.86 25.852			
3,850.00	3,608.18	6,308.11	2,435.84	13.72	107.53	-4.52	-97.60	2,934.17	2,720.82	2,614.25	106.57 25.530			

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #3H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 124-INC, 1779-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			Distance				Warning		
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
3,900.00	3,611.43	6,310.81	2,435.93	14.84	107.56	-5.26	-100.30	2,934.14	2,676.97	2,570.65	106.32	25.178	
3,926.99	3,611.18	6,312.22	2,435.97	15.47	107.58	-5.80	-101.70	2,934.12	2,652.48	2,546.27	106.21	24.975	
4,000.00	3,608.64	6,314.75	2,436.06	17.19	107.61	-0.76	-104.24	2,934.10	2,585.63	2,479.79	105.84	24.430	
4,033.78	3,607.46	6,315.11	2,436.07	18.01	107.61	1.48	-104.59	2,934.09	2,554.80	2,449.16	105.64	24.183	
4,100.00	3,605.15	6,315.29	2,436.07	19.64	107.61	1.49	-104.77	2,934.09	2,494.59	2,389.36	105.24	23.704	
4,200.00	3,601.66	6,315.57	2,436.08	22.17	107.62	1.51	-105.05	2,934.09	2,404.27	2,299.70	104.58	22.990	
4,300.00	3,598.17	6,315.85	2,436.09	24.74	107.62	1.52	-105.33	2,934.08	2,314.75	2,210.90	103.85	22.289	
4,400.00	3,594.68	6,316.13	2,436.10	27.35	107.62	1.54	-105.61	2,934.08	2,226.12	2,123.07	103.05	21.603	
4,500.00	3,591.19	6,316.41	2,436.11	29.98	107.63	1.55	-105.90	2,934.08	2,138.49	2,036.34	102.15	20.934	
4,600.00	3,587.70	6,316.70	2,436.12	32.64	107.63	1.57	-106.18	2,934.07	2,051.99	1,950.83	101.16	20.285	
4,700.00	3,584.21	6,316.98	2,436.13	35.31	107.63	1.58	-106.46	2,934.07	1,966.77	1,866.73	100.04	19.659	
4,800.00	3,580.72	6,317.27	2,436.14	38.00	107.64	1.60	-106.75	2,934.07	1,883.01	1,784.23	98.79	19.061	
4,900.00	3,577.23	6,317.56	2,436.15	40.69	107.64	1.62	-107.04	2,934.07	1,800.91	1,703.54	97.37	18.496	
5,000.00	3,573.74	6,317.84	2,436.16	43.39	107.64	1.63	-107.32	2,934.06	1,720.70	1,624.95	95.75	17.970	
5,100.00	3,570.25	6,318.13	2,436.17	46.10	107.65	1.65	-107.61	2,934.06	1,642.66	1,548.75	93.91	17.492	
5,200.00	3,566.76	6,318.42	2,436.18	48.81	107.65	1.66	-107.90	2,934.06	1,567.12	1,475.32	91.80	17.071	
5,300.00	3,563.27	6,318.71	2,436.18	51.53	107.66	1.68	-108.20	2,934.05	1,494.46	1,405.07	89.38	16.720	
5,400.00	3,559.78	6,319.01	2,436.19	54.25	107.66	1.69	-108.49	2,934.05	1,425.11	1,338.50	86.60	16.456	
5,500.00	3,556.29	6,319.30	2,436.20	56.98	107.66	1.71	-108.78	2,934.05	1,359.58	1,276.16	83.42	16.299	
5,600.00	3,552.80	6,319.60	2,436.21	59.71	107.67	1.73	-109.08	2,934.04	1,298.46	1,218.67	79.78	16.275	
5,700.00	3,549.31	6,319.89	2,436.22	62.44	107.67	1.74	-109.37	2,934.04	1,242.39	1,166.71	75.68	16.417	
5,800.00	3,545.83	6,320.19	2,436.23	65.17	107.67	1.76	-109.67	2,934.04	1,192.08	1,120.96	71.12	16.762	
5,900.00	3,542.34	6,320.49	2,436.24	67.91	107.68	1.77	-109.97	2,934.03	1,148.30	1,082.10	66.19	17.348	
6,000.00	3,538.85	6,320.79	2,436.25	70.64	107.68	1.79	-110.27	2,934.03	1,111.81	1,050.68	61.12	18.190	
6,100.00	3,535.36	6,321.09	2,436.26	73.38	107.68	1.81	-110.57	2,934.03	1,083.35	1,026.99	56.35	19.224	
6,200.00	3,531.87	6,321.39	2,436.27	76.12	107.69	1.82	-110.87	2,934.02	1,063.57	1,010.91	52.66	20.198	
6,300.00	3,528.38	6,321.69	2,436.28	78.86	107.69	1.84	-111.17	2,934.02	1,052.95	1,001.88	51.07	20.618	
6,362.35	3,526.20	6,321.88	2,436.29	80.57	107.69	1.85	-111.36	2,934.02	1,051.10	999.58	51.52	20.400 CC	
6,400.00	3,524.89	6,322.00	2,436.29	81.61	107.70	1.86	-111.48	2,934.02	1,051.78	999.42	52.36	20.088 ES	
6,500.00	3,521.40	6,322.30	2,436.30	84.35	107.70	1.87	-111.78	2,934.02	1,060.08	1,003.77	56.30	18.828	
6,600.00	3,517.91	6,322.61	2,436.31	87.09	107.70	1.89	-112.09	2,934.01	1,077.63	1,015.73	61.91	17.408	
6,700.00	3,514.42	6,322.92	2,436.32	89.84	107.71	1.91	-112.39	2,934.01	1,104.00	1,035.84	68.17	16.196	
6,800.00	3,510.93	6,323.23	2,436.33	92.58	107.71	1.92	-112.70	2,934.01	1,138.57	1,064.16	74.42	15.300	
6,900.00	3,507.44	6,323.54	2,436.34	95.33	107.71	1.94	-113.01	2,934.00	1,180.63	1,100.34	80.29	14.705	
7,000.00	3,503.95	6,323.85	2,436.35	98.08	107.72	1.96	-113.33	2,934.00	1,229.39	1,143.79	85.60	14.362	
7,100.00	3,500.46	6,324.16	2,436.36	100.82	107.72	1.98	-113.64	2,934.00	1,284.11	1,193.82	90.29	14.222 SF	
7,200.00	3,496.97	6,324.47	2,436.37	103.57	107.73	1.99	-113.95	2,933.99	1,344.05	1,249.67	94.38	14.241	
7,300.00	3,493.48	6,324.79	2,436.38	106.32	107.73	2.01	-114.27	2,933.99	1,408.54	1,310.65	97.89	14.388	
7,400.00	3,489.99	6,325.11	2,436.39	109.07	107.73	2.03	-114.58	2,933.99	1,477.00	1,376.09	100.91	14.637	
7,500.00	3,486.50	6,325.42	2,436.40	111.82	107.74	2.04	-114.90	2,933.98	1,548.89	1,445.41	103.48	14.968	
7,600.00	3,483.02	6,325.74	2,436.41	114.57	107.74	2.06	-115.22	2,933.98	1,623.75	1,518.08	105.67	15.366	
7,700.00	3,479.53	6,326.06	2,436.42	117.32	107.74	2.08	-115.54	2,933.98	1,701.21	1,593.66	107.54	15.819	
7,800.00	3,476.04	6,326.39	2,436.43	120.07	107.75	2.10	-115.86	2,933.97	1,780.91	1,671.77	109.14	16.317	
7,900.00	3,472.55	6,326.71	2,436.44	122.82	107.75	2.11	-116.19	2,933.97	1,862.57	1,752.06	110.51	16.855	
8,000.00	3,469.06	6,327.03	2,436.45	125.57	107.76	2.13	-116.51	2,933.97	1,945.94	1,834.26	111.68	17.424	
8,100.00	3,465.57	6,327.36	2,436.46	128.32	107.76	2.15	-116.84	2,933.96	2,030.82	1,918.12	112.69	18.021	
8,200.00	3,462.08	6,330.00	2,436.55	131.07	107.79	2.29	-119.47	2,933.93	2,117.01	2,003.40	113.62	18.633	
8,300.00	3,458.59	6,330.00	2,436.55	133.83	107.79	2.29	-119.47	2,933.93	2,204.37	2,090.01	114.36	19.275	
8,373.92	3,456.01	6,330.00	2,436.55	135.86	107.79	2.29	-119.47	2,933.93	2,269.62	2,154.77	114.85	19.762	

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Corn #4H - OH - OH														Offset Site Error:	0.00 usft
Survey Program: 100-MWD, 2152-MWD														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Reference	Offset	Reference	Offset
0.00	0.00	0.00	0.00	0.00	0.00	102.61	-930.20	4,159.10	4,262.19						
100.00	100.00	36.89	36.89	0.09	0.04	102.61	-930.20	4,159.14	4,261.90	4,261.77	0.13	N/A			
200.00	200.00	120.90	120.90	0.32	0.14	102.61	-930.23	4,159.52	4,262.34	4,261.88	0.46	9,264.317			
300.00	300.00	218.95	218.95	0.54	0.35	102.61	-930.43	4,160.09	4,262.95	4,262.05	0.90	4,759.535			
400.00	400.00	312.02	312.01	0.77	0.56	102.61	-930.82	4,160.66	4,263.65	4,262.33	1.32	3,218.296			
500.00	500.00	400.00	399.99	0.99	0.76	102.62	-931.45	4,161.43	4,264.65	4,262.91	1.75	2,441.627			
600.00	600.00	489.23	489.21	1.22	0.96	102.63	-932.37	4,162.40	4,265.92	4,263.75	2.17	1,964.814			
700.00	700.00	610.49	610.46	1.44	1.21	102.64	-933.72	4,163.48	4,267.04	4,264.40	2.64	1,614.513			
800.00	800.00	733.76	733.72	1.67	1.44	102.65	-934.84	4,163.93	4,267.60	4,264.49	3.11	1,373.438			
900.00	900.00	851.71	851.66	1.89	1.68	102.66	-935.43	4,163.87	4,267.66	4,264.09	3.57	1,195.127			
1,000.00	1,000.00	969.60	969.56	2.12	1.93	102.67	-936.11	4,163.33	4,267.34	4,263.29	4.04	1,055.524			
1,100.00	1,100.00	1,088.62	1,088.57	2.34	2.18	102.68	-936.53	4,162.29	4,266.56	4,262.04	4.52	944.414			
1,200.00	1,200.00	1,193.42	1,193.37	2.56	2.40	102.69	-936.79	4,161.08	4,265.49	4,260.53	4.97	858.805			
1,300.00	1,300.00	1,293.16	1,293.09	2.79	2.61	102.69	-937.02	4,159.90	4,264.38	4,258.98	5.40	789.726			
1,400.00	1,400.00	1,390.82	1,390.75	3.01	2.81	102.70	-937.17	4,158.79	4,263.31	4,257.49	5.82	732.205			
1,500.00	1,500.00	1,492.90	1,492.82	3.24	3.02	102.70	-937.25	4,157.65	4,262.24	4,255.98	6.26	680.987			
1,600.00	1,600.00	1,596.97	1,596.88	3.46	3.24	102.71	-937.26	4,156.43	4,261.10	4,254.39	6.71	635.394			
1,700.00	1,700.00	1,689.16	1,689.07	3.69	3.44	102.71	-937.22	4,155.40	4,259.99	4,252.87	7.12	597.961			
1,800.00	1,800.00	1,795.56	1,795.46	3.91	3.66	102.71	-937.01	4,154.28	4,258.93	4,251.36	7.57	562.513			
1,900.00	1,900.00	1,888.09	1,887.99	4.14	3.85	102.71	-936.65	4,153.34	4,257.85	4,249.86	7.99	532.854			
2,000.00	2,000.00	2,401.00	2,395.87	4.36	4.50	102.24	-897.19	4,136.05	4,256.07	4,247.32	8.75	486.304			
2,100.00	2,100.00	2,433.00	2,425.28	4.59	4.55	102.07	-884.60	4,135.90	4,246.40	4,237.37	9.03	470.342			
2,200.00	2,200.00	2,464.00	2,453.05	4.81	4.61	101.89	-870.84	4,136.69	4,238.48	4,229.17	9.32	454.779			
2,300.00	2,300.00	2,495.00	2,479.96	5.04	4.68	101.68	-855.55	4,138.27	4,232.25	4,222.62	9.63	439.433			
2,400.00	2,400.00	2,527.00	2,506.76	5.26	4.78	101.44	-838.25	4,140.70	4,227.75	4,217.78	9.97	424.090			
2,500.00	2,500.00	2,542.34	2,519.24	5.49	4.84	101.32	-829.45	4,142.17	4,225.03	4,214.77	10.26	411.663			
2,585.60	2,585.60	2,558.00	2,531.70	5.68	4.91	101.19	-820.11	4,143.89	4,224.27	4,213.74	10.52	401.424			
2,600.00	2,600.00	2,558.00	2,531.70	5.71	4.91	101.19	-820.11	4,143.89	4,224.29	4,213.74	10.56	400.201			
2,700.00	2,700.00	2,589.00	2,555.49	5.94	5.06	100.93	-800.67	4,147.96	4,225.51	4,214.57	10.94	386.251			
2,800.00	2,800.00	2,607.77	2,569.30	6.16	5.18	100.75	-788.29	4,150.82	4,228.71	4,217.43	11.28	375.041			
2,900.00	2,900.00	2,631.58	2,586.10	6.39	5.33	100.52	-771.89	4,154.78	4,233.87	4,222.22	11.65	363.390			
3,000.00	3,000.00	2,651.00	2,599.19	6.61	5.47	100.33	-757.98	4,158.27	4,241.00	4,229.00	12.00	353.367			
3,090.63	3,090.63	2,683.00	2,619.54	6.81	5.74	100.00	-734.05	4,164.37	4,249.10	4,236.64	12.46	341.062			
3,100.00	3,100.00	2,690.44	2,624.05	6.83	5.81	5.84	-728.31	4,165.83	4,249.94	4,237.39	12.55	338.655			
3,150.00	3,149.87	2,714.00	2,637.69	6.93	6.03	5.56	-709.69	4,170.49	4,251.85	4,238.99	12.86	330.730			
3,200.00	3,199.20	2,728.47	2,645.61	7.04	6.18	5.42	-697.92	4,173.39	4,249.44	4,236.35	13.09	324.556			
3,250.00	3,247.53	2,745.00	2,654.21	7.15	6.35	5.30	-684.22	4,176.75	4,242.76	4,229.40	13.36	317.623			
3,300.00	3,294.41	2,762.08	2,662.59	7.28	6.54	5.21	-669.75	4,180.23	4,231.84	4,218.19	13.65	310.108			
3,350.00	3,339.41	2,776.00	2,669.02	7.43	6.70	5.20	-657.74	4,183.08	4,216.76	4,202.86	13.90	303.370			
3,400.00	3,382.13	2,789.12	2,674.80	7.64	6.86	5.24	-646.27	4,185.77	4,197.63	4,183.48	14.16	296.512			
3,450.00	3,422.16	2,807.00	2,682.29	7.90	7.09	5.26	-630.47	4,189.47	4,174.63	4,160.16	14.48	288.394			
3,500.00	3,459.14	2,807.00	2,682.29	8.25	7.09	5.59	-630.47	4,189.47	4,147.86	4,133.29	14.57	284.679			
3,550.00	3,492.72	2,819.39	2,687.23	8.70	7.25	5.81	-619.40	4,192.06	4,117.55	4,102.72	14.83	277.644			
3,600.00	3,522.61	2,829.01	2,690.92	9.26	7.37	6.18	-610.75	4,194.07	4,083.88	4,068.83	15.05	271.308			
3,650.00	3,548.51	2,838.00	2,694.26	9.94	7.49	6.68	-602.61	4,195.95	4,047.10	4,031.84	15.26	265.138			
3,700.00	3,570.20	2,838.00	2,694.26	10.74	7.49	7.57	-602.61	4,195.95	4,007.50	3,992.14	15.35	261.016			
3,750.00	3,587.48	2,850.69	2,698.78	11.65	7.67	8.48	-591.06	4,198.62	3,965.32	3,949.71	15.61	253.999			
3,800.00	3,600.18	2,856.05	2,700.62	12.65	7.74	10.04	-586.15	4,199.75	3,920.93	3,905.17	15.76	248.779			
3,850.00	3,608.18	2,860.67	2,702.17	13.72	7.80	12.52	-581.91	4,200.72	3,874.66	3,858.77	15.89	243.845			

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1
Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #4H - OH - OH														Offset Site Error:	0.00 usft
Survey Program: 100-MWD, 2152-MWD														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)					
3,900.00	3,611.43	2,870.00	2,705.23	14.84	7.93	16.64	-573.32	4,202.69	3,826.88	3,810.81	16.07	238.124			
3,926.99	3,611.18	2,870.00	2,705.23	15.47	7.93	20.74	-573.32	4,202.69	3,800.59	3,784.49	16.10	236.067			
4,000.00	3,608.64	2,870.00	2,705.23	17.19	7.93	29.75	-573.32	4,202.69	3,729.26	3,713.11	16.15	230.850			
4,033.78	3,607.46	2,876.24	2,707.19	18.01	8.02	33.14	-567.54	4,204.01	3,696.37	3,680.10	16.27	227.190			
4,100.00	3,605.15	2,884.44	2,709.67	19.64	8.14	32.80	-559.93	4,205.72	3,631.99	3,615.54	16.45	220.783			
4,200.00	3,601.66	2,901.00	2,714.31	22.17	8.38	32.09	-544.40	4,209.15	3,534.85	3,518.06	16.80	210.465			
4,300.00	3,598.17	2,901.00	2,714.31	24.74	8.38	32.09	-544.40	4,209.15	3,437.82	3,420.88	16.94	202.890			
4,400.00	3,594.68	2,915.54	2,717.99	27.35	8.60	31.42	-530.65	4,212.13	3,340.90	3,323.59	17.31	193.036			
4,500.00	3,591.19	2,932.00	2,721.68	29.98	8.84	30.62	-514.97	4,215.49	3,244.14	3,228.43	17.71	183.195			
4,600.00	3,587.70	2,932.00	2,721.68	32.64	8.84	30.62	-514.97	4,215.49	3,147.50	3,129.56	17.94	175.476			
4,700.00	3,584.21	2,942.49	2,723.77	35.31	9.00	30.09	-504.91	4,217.61	3,051.04	3,032.72	18.32	166.577			
4,800.00	3,580.72	2,951.57	2,725.42	38.00	9.14	29.61	-496.16	4,219.44	2,954.75	2,936.05	18.70	157.987			
4,900.00	3,577.23	2,964.00	2,727.40	40.69	9.34	28.93	-484.15	4,221.93	2,858.67	2,839.53	19.14	149.332			
5,000.00	3,573.74	2,964.00	2,727.40	43.39	9.34	28.93	-484.15	4,221.93	2,762.82	2,743.31	19.51	141.644			
5,100.00	3,570.25	2,976.87	2,729.18	46.10	9.54	28.21	-471.66	4,224.49	2,667.19	2,647.19	20.00	133.335			
5,200.00	3,566.76	2,984.91	2,730.15	48.81	9.67	27.74	-463.85	4,226.09	2,571.86	2,551.36	20.49	125.496			
5,300.00	3,563.27	2,995.00	2,731.23	51.53	9.83	27.14	-454.02	4,228.11	2,476.83	2,455.81	21.02	117.812			
5,400.00	3,559.78	2,995.00	2,731.23	54.25	9.83	27.14	-454.02	4,228.11	2,382.17	2,360.61	21.56	110.501			
5,500.00	3,556.29	3,009.98	2,732.56	56.98	10.07	26.22	-439.40	4,231.11	2,287.85	2,265.68	22.17	103.202			
5,600.00	3,552.80	3,026.00	2,733.61	59.71	10.33	25.21	-423.75	4,234.32	2,194.01	2,171.22	22.79	96.256			
5,700.00	3,549.31	3,026.00	2,733.61	62.44	10.33	25.21	-423.75	4,234.32	2,100.61	2,077.14	23.48	89.483			
5,800.00	3,545.83	3,039.69	2,734.25	65.17	10.55	24.32	-410.35	4,237.06	2,007.78	1,983.61	24.17	83.076			
5,900.00	3,542.34	3,051.44	2,734.62	67.91	10.74	23.53	-398.84	4,239.38	1,915.55	1,890.66	24.90	76.936			
6,000.00	3,538.85	3,076.71	2,734.99	70.64	11.15	21.80	-374.03	4,244.22	1,824.00	1,798.46	25.54	71.431			
6,100.00	3,535.36	3,105.25	2,734.90	73.38	11.62	19.76	-345.94	4,249.24	1,733.07	1,706.96	26.11	66.366			
6,200.00	3,531.87	3,128.04	2,734.51	76.12	11.99	18.08	-323.46	4,252.95	1,642.97	1,616.24	26.73	61.464			
6,300.00	3,528.38	3,148.24	2,733.99	78.86	12.32	16.57	-303.51	4,256.06	1,553.87	1,526.50	27.37	56.771			
6,400.00	3,524.89	3,206.77	2,732.37	81.61	13.25	12.04	-245.53	4,263.89	1,465.84	1,438.38	27.46	53.376			
6,500.00	3,521.40	3,244.36	2,731.47	84.35	13.85	9.04	-208.16	4,267.89	1,379.06	1,351.19	27.87	49.480			
6,600.00	3,517.91	3,271.16	2,730.91	87.09	14.26	6.88	-181.47	4,270.25	1,293.99	1,265.55	28.44	45.501			
6,700.00	3,514.42	3,289.54	2,730.58	89.84	14.55	5.38	-163.15	4,271.64	1,211.07	1,181.94	29.13	41.577			
6,800.00	3,510.93	3,302.92	2,730.37	92.58	14.75	4.29	-149.80	4,272.53	1,130.85	1,100.94	29.90	37.817			
6,900.00	3,507.44	3,313.10	2,730.22	95.33	14.91	3.45	-139.64	4,273.14	1,053.95	1,023.21	30.74	34.284			
7,000.00	3,503.95	3,321.11	2,730.12	98.08	15.03	2.80	-131.65	4,273.58	981.20	949.57	31.63	31.025			
7,100.00	3,500.46	3,327.56	2,730.04	100.82	15.13	2.27	-125.20	4,273.91	913.58	881.05	32.52	28.089			
7,200.00	3,496.97	3,332.89	2,729.98	103.57	15.22	1.83	-119.88	4,274.16	852.32	818.93	33.39	25.524			
7,300.00	3,493.48	3,337.30	2,729.93	106.32	15.29	1.47	-115.47	4,274.36	798.91	764.74	34.17	23.379			
7,400.00	3,489.99	3,340.75	2,729.89	109.07	15.34	1.18	-112.02	4,274.50	755.01	720.21	34.80	21.694			
7,500.00	3,486.50	3,343.91	2,729.86	111.82	15.39	0.92	-108.87	4,274.64	722.36	687.09	35.26	20.484			
7,600.00	3,483.02	3,346.80	2,729.83	114.57	15.44	0.69	-105.99	4,274.75	702.53	666.87	35.66	19.703			
7,691.37	3,479.83	3,349.23	2,729.81	117.08	15.47	0.49	-103.55	4,274.85	696.56	660.45	36.12	19.285 CC, ES			
7,700.00	3,479.53	3,349.46	2,729.81	117.32	15.48	0.47	-103.33	4,274.86	696.62	660.45	36.17	19.258			
7,800.00	3,476.04	3,351.91	2,729.79	120.07	15.52	0.27	-100.88	4,274.95	704.98	668.13	36.85	19.133 SF			
7,900.00	3,472.55	3,354.18	2,729.77	122.82	15.55	0.08	-98.61	4,275.04	727.12	689.67	37.45	19.416			
8,000.00	3,469.06	3,356.29	2,729.75	125.57	15.59	-0.09	-96.50	4,275.12	761.84	724.07	37.77	20.169			
8,100.00	3,465.57	3,358.26	2,729.73	128.32	15.62	-0.26	-94.53	4,275.19	807.52	769.75	37.77	21.380			
8,200.00	3,462.08	3,360.09	2,729.72	131.07	15.65	-0.41	-92.70	4,275.25	862.43	824.93	37.50	22.999			
8,300.00	3,458.59	3,361.81	2,729.70	133.83	15.67	-0.55	-90.98	4,275.31	924.91	887.86	37.04	24.968			
8,373.92	3,456.01	3,363.01	2,729.69	135.86	15.69	-0.65	-89.78	4,275.35	975.12	938.48	36.64	26.617			

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



TDS
Anticollision Report



Company: COG Operating LLC

Local Co-ordinate Reference:

Well SHL: 990' FSL, 150' FWL, Sec 36,
T18S, R25E, Unit M

Project: Eddy County, NM (NAD-27 2015)

TVD Reference:

KB @ 3523.00usft (Silver Oak 3)

Reference Site: Pinto 36 State #27H

MD Reference:

KB @ 3523.00usft (Silver Oak 3)

Site Error: 0.00 usft

North Reference:

Grid

Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S,
R25E, Unit M

Survey Calculation Method:

Minimum Curvature

Well Error: 0.00 usft

Output errors are at

2.00 sigma

Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S,
R25E, Unit P

Database:

EDM 5000.1 Single User Db

Reference Design: Design #1

Offset TVD Reference:

Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #5H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-VES-ISCWSA-GYRO-3, 2150-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	134.51	-858.80	873.60	1,225.14				
100.00	100.00	91.50	91.50	0.09	0.09	134.50	-858.47	873.53	1,224.78	1,224.61	0.17	7,329.456	
200.00	200.00	194.34	194.34	0.32	0.26	134.49	-857.75	873.16	1,224.03	1,223.46	0.57	2,133.073	
300.00	300.00	297.56	297.56	0.54	0.45	134.49	-857.02	872.47	1,223.06	1,222.06	0.99	1,231.905	
400.00	400.00	386.69	386.67	0.77	0.61	134.50	-856.79	871.85	1,222.38	1,221.01	1.37	889.080	
426.48	426.48	410.01	409.99	0.83	0.65	134.51	-856.90	871.71	1,222.36	1,220.88	1.48	828.665	
500.00	500.00	474.06	474.04	0.99	0.75	134.54	-857.53	871.47	1,222.67	1,220.92	1.75	698.968	
600.00	600.00	569.40	569.37	1.22	0.91	134.59	-858.99	871.52	1,223.78	1,221.64	2.13	574.391	
700.00	700.00	664.83	664.78	1.44	1.07	134.63	-860.54	871.78	1,225.11	1,222.60	2.52	486.631	
800.00	800.00	765.17	765.11	1.67	1.25	134.68	-862.54	872.14	1,226.77	1,223.86	2.91	421.326	
900.00	900.00	875.67	875.60	1.89	1.45	134.74	-864.30	872.25	1,227.96	1,224.64	3.32	369.454	
1,000.00	1,000.00	966.27	966.19	2.12	1.61	134.77	-865.38	872.25	1,228.83	1,225.12	3.71	331.172	
1,100.00	1,100.00	1,062.99	1,062.89	2.34	1.79	134.82	-867.24	872.85	1,230.62	1,226.51	4.11	299.589	
1,200.00	1,200.00	1,164.37	1,164.25	2.56	1.97	134.84	-868.80	873.59	1,232.22	1,227.71	4.51	273.019	
1,300.00	1,300.00	1,267.17	1,267.04	2.79	2.16	134.87	-870.26	874.37	1,233.76	1,228.84	4.92	250.630	
1,400.00	1,400.00	1,370.20	1,370.06	3.01	2.35	134.90	-871.66	874.77	1,234.99	1,229.66	5.33	231.587	
1,500.00	1,500.00	1,473.19	1,473.04	3.24	2.54	134.94	-872.97	874.94	1,236.01	1,230.26	5.74	215.209	
1,600.00	1,600.00	1,576.35	1,576.19	3.46	2.73	134.96	-873.82	875.19	1,236.76	1,230.61	6.16	200.934	
1,700.00	1,700.00	1,679.10	1,678.94	3.69	2.92	134.97	-874.46	875.30	1,237.28	1,230.72	6.57	188.444	
1,800.00	1,800.00	3,315.09	2,666.04	3.91	16.34	90.58	-7.79	763.82	1,166.83	1,152.14	14.69	79.417	
1,900.00	1,900.00	3,313.46	2,666.07	4.14	16.31	90.71	-9.42	763.78	1,093.20	1,077.73	15.46	70.701	
2,000.00	2,000.00	3,311.89	2,666.09	4.36	16.29	90.82	-10.99	763.74	1,024.04	1,007.72	16.32	62.742	
2,100.00	2,100.00	3,310.40	2,666.11	4.59	16.26	90.94	-12.48	763.70	960.33	943.07	17.26	55.641	
2,200.00	2,200.00	3,308.96	2,666.13	4.81	16.24	91.04	-13.91	763.66	903.23	884.97	18.25	49.490	
2,300.00	2,300.00	3,307.59	2,666.15	5.04	16.21	91.15	-15.29	763.62	854.04	834.79	19.25	44.361	
2,400.00	2,400.00	3,306.27	2,666.17	5.26	16.19	91.25	-16.60	763.59	814.22	794.02	20.20	40.313	
2,500.00	2,500.00	3,305.01	2,666.18	5.49	16.17	91.34	-17.87	763.55	785.19	764.18	21.00	37.382	
2,600.00	2,600.00	3,302.00	2,666.22	5.71	16.12	91.57	-20.87	763.47	768.17	746.62	21.55	35.646	
2,682.22	2,682.22	3,302.00	2,666.22	5.90	16.12	91.57	-20.87	763.47	763.76	741.93	21.83	34.988 CC, ES	
2,700.00	2,700.00	3,302.00	2,666.22	5.94	16.12	91.57	-20.87	763.47	763.97	742.10	21.86	34.946 SF	
2,800.00	2,800.00	3,302.00	2,666.22	6.16	16.12	91.57	-20.87	763.47	772.79	750.94	21.85	35.366	
2,900.00	2,900.00	3,302.00	2,666.22	6.39	16.12	91.57	-20.87	763.47	794.20	772.66	21.54	36.870	
3,000.00	3,000.00	3,302.00	2,666.22	6.61	16.12	91.57	-20.87	763.47	827.23	806.24	20.99	39.411	
3,090.63	3,090.63	3,302.00	2,666.22	6.81	16.12	91.57	-20.87	763.47	866.10	845.75	20.35	42.563	
3,100.00	3,100.00	3,302.00	2,666.22	6.83	16.12	-2.48	-20.87	763.47	870.48	850.21	20.27	42.940	
3,150.00	3,149.87	3,302.00	2,666.22	6.93	16.12	-2.36	-20.87	763.47	892.68	872.85	19.83	45.017	
3,200.00	3,199.20	3,302.00	2,666.22	7.04	16.12	-2.27	-20.87	763.47	912.83	893.50	19.33	47.212	
3,250.00	3,247.53	3,302.00	2,666.22	7.15	16.12	-2.18	-20.87	763.47	930.89	912.09	18.80	49.511	
3,300.00	3,294.41	3,302.00	2,666.22	7.28	16.12	-2.11	-20.87	763.47	946.82	928.59	18.23	51.927	
3,350.00	3,339.41	3,302.00	2,666.22	7.43	16.12	-2.06	-20.87	763.47	960.57	942.94	17.63	54.472	
3,400.00	3,382.13	3,302.00	2,666.22	7.64	16.12	-2.01	-20.87	763.47	972.12	955.12	17.01	57.156	
3,450.00	3,422.16	3,302.00	2,666.22	7.90	16.12	-1.98	-20.87	763.47	981.44	965.08	16.36	59.983	
3,500.00	3,459.14	3,302.00	2,666.22	8.25	16.12	-1.95	-20.87	763.47	988.51	972.81	15.70	62.953	
3,550.00	3,492.72	3,290.66	2,666.35	8.70	15.93	-1.28	-32.21	763.22	993.21	978.33	14.88	66.765	
3,600.00	3,522.61	3,289.08	2,666.36	9.26	15.91	-1.18	-33.79	763.19	995.69	981.50	14.20	70.130	
3,650.00	3,548.51	3,287.39	2,666.38	9.94	15.88	-1.08	-35.48	763.16	995.89	982.36	13.53	73.588	
3,700.00	3,570.20	3,285.57	2,666.39	10.74	15.85	-0.98	-37.29	763.14	993.80	980.90	12.89	77.076	
3,750.00	3,587.48	3,283.65	2,666.41	11.65	15.82	-0.88	-39.22	763.11	989.41	977.12	12.29	80.500	
3,800.00	3,600.18	3,281.61	2,666.43	12.65	15.78	-0.77	-41.26	763.08	982.75	971.01	11.74	83.733	

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #5H - OH - OH														Offset Site Error:	0.00 usft
Survey Program: 100-VES-ISCWSA-GYRO-3, 2150-MWD														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)										
3,850.00	3,608.18	3,279.47	2,666.45	13.72	15.75	-0.65	-43.40	763.06	973.82	962.58	11.24	86.611			
3,900.00	3,611.43	3,277.22	2,666.46	14.84	15.71	-0.53	-45.64	763.03	962.65	951.83	10.82	88.941			
3,926.99	3,611.18	3,275.97	2,666.47	15.47	15.69	-0.46	-46.89	763.02	955.69	945.06	10.64	89.833			
4,000.00	3,608.64	3,273.51	2,666.49	17.19	15.65	0.14	-49.36	763.00	938.64	928.41	10.23	91.768			
4,033.78	3,607.46	3,273.06	2,666.49	18.01	15.64	0.32	-49.81	763.00	932.57	922.45	10.12	92.143			
4,100.00	3,605.15	3,272.60	2,666.50	19.64	15.63	0.35	-50.27	763.00	924.17	914.07	10.09	91.579			
4,184.79	3,602.19	3,271.96	2,666.50	21.78	15.62	0.39	-50.91	762.99	920.27	909.84	10.43	88.264			
4,200.00	3,601.66	3,271.84	2,666.50	22.17	15.62	0.40	-51.03	762.99	920.39	909.86	10.53	87.409			
4,300.00	3,598.17	3,270.98	2,666.51	24.74	15.61	0.45	-51.89	762.99	927.45	915.96	11.49	80.721			
4,400.00	3,594.68	3,270.00	2,666.51	27.35	15.59	0.51	-52.87	762.98	945.10	932.31	12.78	73.923			
4,500.00	3,591.19	3,268.88	2,666.52	29.98	15.57	0.58	-53.99	762.98	972.75	958.54	14.21	68.454			
4,600.00	3,587.70	3,267.58	2,666.53	32.64	15.55	0.66	-55.29	762.98	1,009.59	993.98	15.62	64.649			
4,700.00	3,584.21	3,266.05	2,666.54	35.31	15.53	0.76	-56.81	762.97	1,054.66	1,037.74	16.92	62.344			
4,800.00	3,580.72	3,264.24	2,666.55	38.00	15.50	0.87	-58.62	762.97	1,106.95	1,088.88	18.07	61.255			
4,900.00	3,577.23	3,262.06	2,666.56	40.69	15.46	1.01	-60.81	762.97	1,165.49	1,146.42	19.07	61.119			
5,000.00	3,573.74	3,259.36	2,666.57	43.39	15.42	1.17	-63.51	762.98	1,229.38	1,209.46	19.92	61.727			
5,100.00	3,570.25	3,255.96	2,666.58	46.10	15.36	1.39	-66.91	762.99	1,297.83	1,277.21	20.63	62.922			
5,200.00	3,566.76	3,251.53	2,666.59	48.81	15.29	1.66	-71.34	763.02	1,370.17	1,348.95	21.21	64.589			
5,300.00	3,563.27	3,193.28	2,666.60	51.53	14.32	5.27	-129.54	764.99	1,445.79	1,424.26	21.52	67.180			
5,400.00	3,559.78	3,156.47	2,666.46	54.25	13.73	7.52	-166.25	767.70	1,523.94	1,501.95	21.99	69.303			
5,500.00	3,556.29	3,134.95	2,666.45	56.98	13.40	8.83	-187.69	769.61	1,604.33	1,581.91	22.42	71.573			
5,600.00	3,552.80	3,019.00	2,667.47	59.71	11.50	15.68	-302.76	783.56	1,686.58	1,663.03	23.55	71.610			
5,700.00	3,549.31	3,005.40	2,667.35	62.44	11.26	16.45	-316.15	785.89	1,769.83	1,745.96	23.87	74.140			
5,800.00	3,545.83	2,997.18	2,667.12	65.17	11.11	16.91	-324.25	787.31	1,854.68	1,830.57	24.11	76.940			
5,900.00	3,542.34	2,987.00	2,666.66	67.91	10.93	17.47	-334.26	789.08	1,940.89	1,916.56	24.33	79.787			
6,000.00	3,538.85	2,987.00	2,666.66	70.64	10.93	17.47	-334.26	789.08	2,028.30	2,003.87	24.43	83.021			
6,100.00	3,535.36	2,971.88	2,665.69	73.38	10.66	18.29	-349.11	791.72	2,116.71	2,092.06	24.65	85.871			
6,200.00	3,531.87	2,956.00	2,664.34	76.12	10.38	19.13	-364.70	794.48	2,206.09	2,181.23	24.86	88.742			
6,300.00	3,528.38	2,956.00	2,664.34	78.86	10.38	19.13	-364.70	794.48	2,296.22	2,271.31	24.91	92.175			
6,400.00	3,524.89	2,956.00	2,664.34	81.61	10.38	19.13	-364.70	794.48	2,387.14	2,362.18	24.95	95.665			
6,500.00	3,521.40	2,939.39	2,662.60	84.35	10.08	19.99	-380.97	797.32	2,478.61	2,453.48	25.14	98.611			
6,600.00	3,517.91	2,924.00	2,660.72	87.09	9.81	20.78	-396.02	799.89	2,570.74	2,545.44	25.30	101.611			
6,700.00	3,514.42	2,924.00	2,660.72	89.84	9.81	20.78	-396.02	799.89	2,663.32	2,638.01	25.32	105.206			
6,800.00	3,510.93	2,924.00	2,660.72	92.58	9.81	20.78	-396.02	799.89	2,756.42	2,731.10	25.33	108.836			
6,900.00	3,507.44	2,912.44	2,659.12	95.33	9.61	21.35	-407.32	801.77	2,849.92	2,824.48	25.44	112.022			
7,000.00	3,503.95	2,906.78	2,658.28	98.08	9.52	21.63	-412.84	802.67	2,943.82	2,918.33	25.50	115.462			
7,100.00	3,500.46	2,893.00	2,656.06	100.82	9.28	22.30	-426.27	804.81	3,038.12	3,012.50	25.62	118.566			
7,200.00	3,496.97	2,893.00	2,656.06	103.57	9.28	22.30	-426.27	804.81	3,132.68	3,107.06	25.62	122.272			
7,300.00	3,493.48	2,893.00	2,656.06	106.32	9.28	22.30	-426.27	804.81	3,227.56	3,201.94	25.62	125.998			
7,400.00	3,489.99	2,881.99	2,654.11	109.07	9.09	22.82	-436.98	806.49	3,322.70	3,296.99	25.71	129.219			
7,500.00	3,486.50	2,874.53	2,652.72	111.82	8.96	23.16	-444.22	807.61	3,418.09	3,392.31	25.78	132.606			
7,600.00	3,483.02	2,862.00	2,650.25	114.57	8.75	23.74	-456.36	809.47	3,513.70	3,487.82	25.89	135.741			
7,700.00	3,479.53	2,862.00	2,650.25	117.32	8.75	23.74	-456.36	809.47	3,609.50	3,583.63	25.88	139.497			
7,800.00	3,476.04	2,862.00	2,650.25	120.07	8.75	23.74	-456.36	809.47	3,705.53	3,679.66	25.86	143.265			
7,900.00	3,472.55	2,848.58	2,647.41	122.82	8.53	24.33	-469.33	811.43	3,801.69	3,775.70	25.98	146.311			
8,000.00	3,469.06	2,842.91	2,646.15	125.57	8.44	24.58	-474.80	812.24	3,898.04	3,872.01	26.03	149.771			
8,100.00	3,465.57	2,831.00	2,643.41	128.32	8.24	25.09	-486.27	813.92	3,994.56	3,968.43	26.13	152.875			
8,200.00	3,462.08	2,831.00	2,643.41	131.07	8.24	25.09	-486.27	813.92	4,091.20	4,065.08	26.12	156.647			
8,300.00	3,458.59	2,831.00	2,643.41	133.83	8.24	25.09	-486.27	813.92	4,187.99	4,161.89	26.11	160.425			

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Eddy County Offset Wells - Pinto 36 State Com #5H - OH - OH													Offset Well Error:	0.00 usft
Survey Program: 100-VES-ISCWSA-GYRO-3, 2150-MWD														
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
8,373.92	3,456.01	2,820.42	2,640.81	135.86	8.07	25.54	-496.42	815.38	4,259.61	4,233.41	26.20	162.569		



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #6H - OH - OH													Offset Site Error: 0.00 usft
Survey Program: 100-VES-ISCWSA-GYRO-3, 2091-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.00	0.00	0.00	0.00	0.00	0.00	113.21	-884.50	2,063.00	2,244.64				
100.00	100.00	88.31	88.31	0.09	0.07	113.21	-884.63	2,062.98	2,244.65	2,244.50	0.16	N/A	
200.00	200.00	179.68	179.68	0.32	0.23	113.22	-885.04	2,063.05	2,244.90	2,244.37	0.53	4,215.358	
300.00	300.00	285.15	285.15	0.54	0.42	113.23	-885.70	2,063.24	2,245.31	2,244.37	0.94	2,380.165	
400.00	400.00	376.74	376.74	0.77	0.59	113.25	-886.52	2,063.23	2,245.66	2,244.33	1.33	1,687.220	
500.00	500.00	484.83	484.82	0.99	0.80	113.28	-887.82	2,063.28	2,246.19	2,244.44	1.75	1,287.183	
600.00	600.00	581.23	581.21	1.22	0.98	113.30	-888.49	2,063.26	2,246.44	2,244.30	2.14	1,049.435	
700.00	700.00	696.36	696.34	1.44	1.18	113.31	-888.98	2,063.22	2,246.59	2,244.03	2.56	876.042	
800.00	800.00	791.22	791.20	1.67	1.36	113.32	-889.30	2,062.88	2,246.41	2,243.46	2.95	761.325	
900.00	900.00	897.66	897.63	1.89	1.54	113.33	-889.57	2,062.57	2,246.24	2,242.88	3.36	669.055	
1,000.00	1,000.00	991.41	991.39	2.12	1.70	113.33	-889.58	2,062.35	2,246.03	2,242.29	3.74	599.967	
1,100.00	1,100.00	1,096.82	1,096.80	2.34	1.90	113.34	-889.93	2,062.02	2,245.87	2,241.72	4.15	540.955	
1,200.00	1,200.00	1,192.79	1,192.76	2.56	2.08	113.36	-890.43	2,061.57	2,245.65	2,241.11	4.54	494.245	
1,300.00	1,300.00	1,293.24	1,293.21	2.79	2.25	113.37	-890.67	2,061.33	2,245.53	2,240.58	4.94	454.221	
1,400.00	1,400.00	1,394.89	1,394.86	3.01	2.41	113.37	-890.49	2,061.21	2,245.35	2,240.00	5.35	419.930	
1,500.00	1,500.00	1,495.00	1,494.97	3.24	2.58	113.37	-890.56	2,060.94	2,245.13	2,239.38	5.75	390.584	
1,600.00	1,600.00	1,604.81	1,604.78	3.46	2.79	113.38	-890.82	2,060.31	2,244.69	2,238.52	6.17	363.979	
1,700.00	1,700.00	1,700.00	1,699.97	3.69	2.95	113.39	-890.67	2,059.66	2,244.01	2,237.45	6.56	341.979	
1,800.00	1,800.00	1,793.84	1,793.81	3.91	3.11	113.38	-890.39	2,059.34	2,243.59	2,236.63	6.95	322.607	
1,900.00	1,900.00	1,892.96	1,892.93	4.14	3.28	113.38	-890.29	2,059.24	2,243.45	2,236.09	7.36	304.938	
2,000.00	2,000.00	2,015.34	2,015.30	4.36	3.46	113.37	-889.59	2,058.73	2,242.85	2,235.08	7.77	288.796	
2,100.00	2,100.00	2,173.97	2,173.37	4.59	3.56	113.09	-878.14	2,060.04	2,240.95	2,232.88	8.08	277.487	
2,200.00	2,200.00	3,327.81	2,661.05	4.81	16.58	89.69	11.89	2,170.43	2,220.99	2,200.17	20.82	106.667	
2,300.00	2,300.00	3,325.42	2,661.12	5.04	16.54	89.75	9.50	2,170.43	2,201.95	2,180.78	21.16	104.039	
2,400.00	2,400.00	3,322.91	2,661.19	5.26	16.50	89.82	7.00	2,170.43	2,187.32	2,165.84	21.48	101.849	
2,500.00	2,500.00	3,320.29	2,661.27	5.49	16.46	89.88	4.37	2,170.43	2,177.18	2,155.43	21.75	100.090	
2,600.00	2,600.00	3,317.53	2,661.36	5.71	16.41	89.96	1.62	2,170.43	2,171.60	2,149.61	21.99	98.756	
2,671.42	2,671.42	3,315.47	2,661.42	5.87	16.38	90.01	-0.44	2,170.42	2,170.42	2,148.29	22.13	98.059	
2,700.00	2,700.00	3,314.63	2,661.45	5.94	16.37	90.03	-1.28	2,170.42	2,170.61	2,148.43	22.19	97.840	
2,800.00	2,800.00	3,310.00	2,661.60	6.16	16.29	90.16	-5.91	2,170.42	2,174.23	2,151.91	22.31	97.438	
2,900.00	2,900.00	3,306.95	2,661.70	6.39	16.24	90.24	-8.96	2,170.42	2,182.42	2,159.99	22.42	97.330	
3,000.00	3,000.00	3,301.04	2,661.89	6.61	16.15	90.39	-14.86	2,170.42	2,195.13	2,172.68	22.45	97.797	
3,090.63	3,090.63	3,295.85	2,662.06	6.81	16.06	90.53	-20.05	2,170.40	2,210.49	2,188.05	22.43	98.534	
3,100.00	3,100.00	3,295.31	2,662.07	6.83	16.05	-3.51	-20.59	2,170.40	2,212.20	2,189.77	22.43	98.636	
3,150.00	3,149.87	3,292.14	2,662.17	6.93	16.00	-3.39	-23.76	2,170.39	2,219.17	2,196.79	22.38	99.165	
3,200.00	3,199.20	3,288.51	2,662.29	7.04	15.94	-3.27	-27.39	2,170.37	2,222.49	2,200.18	22.31	99.608	
3,250.00	3,247.53	3,284.48	2,662.41	7.15	15.87	-3.17	-31.41	2,170.35	2,222.14	2,199.91	22.23	99.942	
3,300.00	3,294.41	3,280.13	2,662.55	7.28	15.80	-3.08	-35.76	2,170.33	2,218.12	2,195.98	22.15	100.159	
3,350.00	3,339.41	3,275.52	2,662.69	7.43	15.73	-3.00	-40.37	2,170.29	2,210.45	2,188.40	22.05	100.250	
3,400.00	3,382.13	3,270.72	2,662.83	7.64	15.65	-2.94	-45.17	2,170.26	2,199.16	2,177.22	21.95	100.201	
3,450.00	3,422.16	3,265.80	2,662.97	7.90	15.57	-2.90	-50.08	2,170.21	2,184.30	2,162.46	21.84	100.002	
3,500.00	3,459.14	3,260.83	2,663.12	8.25	15.49	-2.86	-55.05	2,170.16	2,165.93	2,144.19	21.74	99.642	
3,550.00	3,492.72	3,255.86	2,663.26	8.70	15.40	-2.85	-60.02	2,170.10	2,144.13	2,122.50	21.63	99.112	
3,600.00	3,522.61	3,250.94	2,663.40	9.26	15.32	-2.86	-64.93	2,170.04	2,119.01	2,097.47	21.53	98.405	
3,650.00	3,548.51	3,246.13	2,663.53	9.94	15.24	-2.89	-69.74	2,169.98	2,090.66	2,069.23	21.44	97.518	
3,700.00	3,570.20	3,241.46	2,663.66	10.74	15.17	-2.95	-74.41	2,169.91	2,059.24	2,037.89	21.35	96.453	
3,750.00	3,587.48	3,236.97	2,663.78	11.65	15.09	-3.05	-78.90	2,169.84	2,024.90	2,003.63	21.27	95.212	
3,800.00	3,600.18	3,232.70	2,663.89	12.65	15.02	-3.20	-83.17	2,169.77	1,987.80	1,966.61	21.19	93.804	
3,850.00	3,608.18	3,228.65	2,663.99	13.72	14.96	-3.42	-87.21	2,169.70	1,948.15	1,927.03	21.12	92.239	

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Eddy County Offset Wells - Pinto 36 State Com #6H - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 100-VES-ISCWSA-GYRO-3, 2091-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
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
3,900.00	3,611.43	3,224.87	2,664.09	14.84	14.90	-3.75	-91.00	2,169.63	1,906.15	1,885.10	21.06	90.528	
3,926.99	3,611.18	3,222.94	2,664.14	15.47	14.86	-3.99	-92.93	2,169.60	1,882.60	1,861.56	21.03	89.516	
4,000.00	3,608.64	3,219.80	2,664.22	17.19	14.81	0.19	-96.06	2,169.54	1,818.38	1,797.44	20.94	86.831	
4,033.78	3,607.46	3,219.65	2,664.22	18.01	14.81	1.98	-96.21	2,169.53	1,788.89	1,767.98	20.91	85.533	
4,100.00	3,605.15	3,220.12	2,664.21	19.64	14.82	1.95	-95.74	2,169.54	1,731.54	1,710.67	20.87	82.958	
4,200.00	3,601.66	3,220.81	2,664.19	22.17	14.83	1.90	-95.06	2,169.56	1,646.20	1,625.39	20.81	79.104	
4,300.00	3,598.17	3,221.45	2,664.18	24.74	14.84	1.86	-94.41	2,169.57	1,562.60	1,541.85	20.75	75.303	
4,400.00	3,594.68	3,222.07	2,664.16	27.35	14.85	1.82	-93.80	2,169.58	1,481.03	1,460.34	20.69	71.569	
4,500.00	3,591.19	3,222.65	2,664.15	29.98	14.86	1.78	-93.21	2,169.59	1,401.85	1,381.21	20.64	67.923	
4,600.00	3,587.70	3,223.20	2,664.13	32.64	14.87	1.74	-92.66	2,169.60	1,325.49	1,304.91	20.59	64.389	
4,700.00	3,584.21	3,223.73	2,664.12	35.31	14.88	1.71	-92.13	2,169.61	1,252.47	1,231.94	20.53	61.003	
4,800.00	3,580.72	3,224.24	2,664.11	38.00	14.89	1.68	-91.63	2,169.62	1,183.39	1,162.92	20.47	57.807	
4,900.00	3,577.23	3,224.72	2,664.09	40.69	14.89	1.65	-91.15	2,169.63	1,119.00	1,098.60	20.40	54.851	
5,000.00	3,573.74	3,225.17	2,664.08	43.39	14.90	1.62	-90.69	2,169.64	1,060.14	1,039.83	20.31	52.196	
5,100.00	3,570.25	3,225.61	2,664.07	46.10	14.91	1.59	-90.25	2,169.65	1,007.78	987.59	20.20	49.897	
5,200.00	3,566.76	3,226.03	2,664.06	48.81	14.91	1.56	-89.83	2,169.66	963.00	942.94	20.06	48.001	
5,300.00	3,563.27	3,226.43	2,664.05	51.53	14.92	1.53	-89.43	2,169.66	926.88	906.95	19.93	46.505	
5,400.00	3,559.78	3,226.82	2,664.04	54.25	14.93	1.51	-89.05	2,169.67	900.47	880.60	19.87	45.323	
5,500.00	3,556.29	3,227.19	2,664.03	56.98	14.93	1.48	-88.68	2,169.68	884.63	864.64	19.99	44.244	
5,591.32	3,553.11	3,227.52	2,664.02	59.47	14.94	1.46	-88.35	2,169.68	879.91	859.52	20.39	43.162 CC	
5,600.00	3,552.80	3,227.55	2,664.02	59.71	14.94	1.46	-88.32	2,169.68	879.95	859.51	20.44	43.052 ES	
5,700.00	3,549.31	3,227.89	2,664.01	62.44	14.94	1.44	-87.98	2,169.69	886.59	865.37	21.22	41.783	
5,800.00	3,545.83	3,228.22	2,664.01	65.17	14.95	1.42	-87.65	2,169.69	904.31	882.12	22.20	40.742	
5,900.00	3,542.34	3,228.53	2,664.00	67.91	14.96	1.40	-87.33	2,169.70	932.48	909.28	23.19	40.202 SF	
6,000.00	3,538.85	3,228.84	2,663.99	70.64	14.96	1.38	-87.03	2,169.71	970.18	946.08	24.10	40.260	
6,100.00	3,535.36	3,229.13	2,663.98	73.38	14.97	1.36	-86.74	2,169.71	1,016.36	991.51	24.85	40.894	
6,200.00	3,531.87	3,229.42	2,663.97	76.12	14.97	1.34	-86.45	2,169.72	1,069.92	1,044.46	25.45	42.034	
6,300.00	3,528.38	3,229.69	2,663.97	78.86	14.97	1.32	-86.18	2,169.72	1,129.80	1,103.89	25.91	43.602	
6,400.00	3,524.89	3,229.95	2,663.96	81.61	14.98	1.30	-85.91	2,169.73	1,195.07	1,168.82	26.25	45.527	
6,500.00	3,521.40	3,230.21	2,663.95	84.35	14.98	1.29	-85.66	2,169.73	1,264.88	1,238.39	26.49	47.747	
6,600.00	3,517.91	3,230.46	2,663.95	87.09	14.99	1.27	-85.41	2,169.73	1,338.53	1,311.87	26.66	50.211	
6,700.00	3,514.42	3,230.70	2,663.94	89.84	14.99	1.26	-85.17	2,169.74	1,415.41	1,388.65	26.77	52.877	
6,800.00	3,510.93	3,230.93	2,663.93	92.58	14.99	1.24	-84.94	2,169.74	1,495.03	1,468.20	26.83	55.713	
6,900.00	3,507.44	3,231.15	2,663.93	95.33	15.00	1.23	-84.72	2,169.75	1,576.98	1,550.11	26.87	58.689	
7,000.00	3,503.95	3,231.37	2,663.92	98.08	15.00	1.21	-84.50	2,169.75	1,660.90	1,634.02	26.88	61.784	
7,100.00	3,500.46	3,231.58	2,663.92	100.82	15.01	1.20	-84.29	2,169.75	1,746.52	1,719.64	26.88	64.978	
7,200.00	3,496.97	3,231.78	2,663.91	103.57	15.01	1.19	-84.08	2,169.76	1,833.59	1,806.73	26.86	68.258	
7,300.00	3,493.48	3,231.98	2,663.91	106.32	15.01	1.17	-83.89	2,169.76	1,921.93	1,895.09	26.84	71.609	
7,400.00	3,489.99	3,232.17	2,663.90	109.07	15.02	1.16	-83.69	2,169.76	2,011.35	1,984.54	26.81	75.021	
7,500.00	3,486.50	3,232.36	2,663.90	111.82	15.02	1.15	-83.51	2,169.77	2,101.73	2,074.95	26.78	78.486	
7,600.00	3,483.02	3,232.54	2,663.89	114.57	15.02	1.14	-83.33	2,169.77	2,192.94	2,166.20	26.74	81.996	
7,700.00	3,479.53	3,232.72	2,663.89	117.32	15.02	1.12	-83.15	2,169.77	2,284.89	2,258.18	26.71	85.544	
7,800.00	3,476.04	3,232.89	2,663.88	120.07	15.03	1.11	-82.98	2,169.78	2,377.49	2,350.81	26.68	89.124	
7,900.00	3,472.55	3,233.06	2,663.88	122.82	15.03	1.10	-82.81	2,169.78	2,470.67	2,444.02	26.64	92.733	
8,000.00	3,469.06	3,233.22	2,663.88	125.57	15.03	1.09	-82.65	2,169.78	2,564.36	2,537.75	26.61	96.365	
8,100.00	3,465.57	3,233.38	2,663.87	128.32	15.03	1.08	-82.49	2,169.78	2,658.51	2,631.93	26.58	100.018	
8,200.00	3,462.08	3,233.53	2,663.87	131.07	15.04	1.07	-82.34	2,169.79	2,753.07	2,726.52	26.55	103.689	
8,300.00	3,458.59	3,233.68	2,663.86	133.83	15.04	1.06	-82.19	2,169.79	2,848.00	2,821.48	26.52	107.374	
8,373.92	3,456.01	3,233.79	2,663.86	135.86	15.04	1.06	-82.08	2,169.79	2,918.40	2,891.89	26.51	110.105	

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Pinto 36 State Com #7H - SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O - BHL: 220' FNL, 170														Offset Site Error:	0.00 usft
Survey Program: 0-MWD														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)		
0.00	0.00	0.00	0.00	0.00	0.00	104.67	-915.80	3,499.30	3,617.29						
100.00	100.00	68.00	68.00	0.09	0.06	104.67	-915.80	3,499.30	3,617.15	0.15	N/A				
105.93	105.93	73.93	73.93	0.11	0.07	104.67	-915.80	3,499.30	3,617.15	0.17	N/A				
200.00	200.00	163.17	163.17	0.32	0.23	104.67	-916.12	3,499.25	3,617.18	0.54	6,673.427				
300.00	300.00	253.04	252.99	0.54	0.42	104.71	-918.85	3,498.79	3,617.46	0.96	3,781.107				
400.00	400.00	342.64	342.41	0.77	0.63	104.80	-924.33	3,497.86	3,618.02	1.39	2,608.655				
500.00	500.00	440.45	439.89	0.99	0.87	104.93	-932.31	3,496.51	3,618.78	1.86	1,943.612				
600.00	600.00	540.10	539.20	1.22	1.13	105.06	-940.48	3,495.13	3,619.57	2.35	1,540.386				
700.00	700.00	639.76	638.50	1.44	1.40	105.19	-948.66	3,493.75	3,620.37	2.84	1,274.281				
800.00	800.00	739.41	737.81	1.67	1.67	105.32	-956.83	3,492.37	3,621.20	3.33	1,086.057				
900.00	900.00	839.06	837.12	1.89	1.94	105.45	-965.01	3,490.98	3,622.04	3.83	946.086				
1,000.00	1,000.00	938.71	936.43	2.12	2.21	105.58	-973.18	3,489.60	3,622.90	4.32	838.000				
1,100.00	1,100.00	1,038.37	1,035.74	2.34	2.48	105.71	-981.36	3,488.22	3,623.78	4.82	752.055				
1,200.00	1,200.00	1,138.02	1,135.04	2.56	2.75	105.84	-989.54	3,486.84	3,624.68	5.31	682.098				
1,300.00	1,300.00	1,237.67	1,234.35	2.79	3.02	105.97	-997.71	3,485.46	3,625.60	5.81	624.057				
1,400.00	1,400.00	1,337.33	1,333.66	3.01	3.30	106.10	-1,005.89	3,484.08	3,626.54	6.31	575.133				
1,500.00	1,500.00	1,436.98	1,432.97	3.24	3.57	106.23	-1,014.06	3,482.70	3,627.49	6.80	533.339				
1,600.00	1,600.00	1,536.63	1,532.27	3.46	3.84	106.36	-1,022.24	3,481.31	3,628.47	7.30	497.223				
1,700.00	1,700.00	1,636.29	1,631.58	3.69	4.11	106.49	-1,030.41	3,479.93	3,629.46	7.79	465.704				
1,800.00	1,800.00	1,735.94	1,730.27	3.91	4.53	106.62	-1,038.58	3,480.55	3,630.44	8.28	435.257				
1,900.00	1,900.00	1,835.59	1,829.27	4.14	4.95	106.75	-1,046.75	3,481.16	3,631.42	8.76	405.810				
2,000.00	2,000.00	1,935.24	1,928.27	4.36	5.36	106.88	-1,054.92	3,481.77	3,632.40	9.24	376.363				
2,100.00	2,100.00	2,034.89	2,026.73	4.59	5.84	107.01	-1,063.09	3,482.38	3,633.38	9.72	346.916				
2,200.00	2,200.00	2,134.54	2,125.73	4.81	6.41	107.14	-1,071.26	3,482.99	3,634.36	10.20	317.469				
2,300.00	2,300.00	2,234.19	2,224.73	5.04	7.07	107.27	-1,079.43	3,483.60	3,635.34	10.68	288.022				
2,400.00	2,400.00	2,333.84	2,223.73	5.26	7.84	107.40	-1,087.60	3,484.21	3,636.32	11.16	258.575				
2,500.00	2,500.00	2,433.49	2,223.27	5.49	8.71	107.53	-1,095.77	3,484.82	3,637.30	11.64	229.128				
2,600.00	2,600.00	2,533.14	2,222.81	5.71	9.68	107.66	-1,103.94	3,485.43	3,638.28	12.12	200.681				
2,700.00	2,700.00	2,632.79	2,222.35	5.94	10.75	107.79	-1,112.11	3,486.04	3,639.26	12.60	172.234				
2,715.34	2,715.34	2,632.34	2,221.89	5.97	10.80	90.41	-24.75	3,484.66	3,484.75	23.77	146.581				
2,800.00	2,800.00	2,731.99	2,221.43	6.16	11.95	90.45	-27.64	3,484.64	3,485.78	23.91	145.814				
2,900.00	2,900.00	2,831.64	2,220.97	6.39	13.28	90.51	-31.06	3,484.62	3,486.84	24.05	145.126				
3,000.00	3,000.00	2,931.29	2,220.51	6.61	14.79	90.57	-34.48	3,484.60	3,487.96	24.17	144.669				
3,090.63	3,090.63	2,930.84	2,220.05	6.81	16.48	90.62	-37.58	3,484.57	3,489.08	24.26	144.450				
3,100.00	3,100.00	2,930.39	2,219.59	6.83	17.25	-3.44	-37.90	3,484.57	3,490.20	24.27	144.448				
3,150.00	3,149.87	2,929.94	2,219.13	6.93	18.18	-3.39	-39.82	3,484.56	3,491.32	24.29	144.410				
3,200.00	3,199.20	2,929.49	2,218.67	7.04	19.25	-3.37	-42.02	3,484.54	3,492.44	24.31	144.235				
3,250.00	3,247.53	2,929.04	2,218.21	7.15	20.46	-3.36	-44.49	3,484.52	3,493.56	24.33	143.919				
3,300.00	3,294.41	2,928.59	2,217.75	7.28	21.81	-3.38	-47.20	3,484.51	3,494.68	24.34	143.460				
3,350.00	3,339.41	2,928.14	2,217.29	7.43	23.30	-3.42	-50.12	3,484.48	3,495.80	24.35	142.857				
3,400.00	3,382.13	2,927.69	2,216.83	7.64	24.93	-3.49	-53.24	3,484.46	3,496.92	24.35	142.108				
3,450.00	3,422.16	2,927.24	2,216.37	7.90	26.70	-3.59	-56.52	3,484.44	3,498.04	24.35	141.211				
3,500.00	3,459.14	2,926.79	2,215.91	8.25	28.61	-3.73	-59.93	3,484.42	3,499.16	24.36	140.168				
3,550.00	3,492.72	2,926.34	2,215.45	8.70	30.66	-3.91	-63.44	3,484.39	3,500.28	24.36	138.982				
3,600.00	3,522.61	2,925.89	2,214.99	9.26	32.85	-4.15	-67.02	3,484.36	3,501.40	24.36	137.659				
3,650.00	3,548.51	2,925.44	2,214.53	9.94	35.18	-4.47	-70.63	3,484.34	3,502.52	24.36	136.210				
3,700.00	3,570.20	2,924.99	2,214.07	10.74	37.65	-4.90	-74.24	3,484.31	3,503.64	24.37	134.647				
3,750.00	3,587.48	2,924.54	2,213.61	11.65	40.26	-5.49	-77.83	3,484.29	3,504.76	24.37	132.986				
3,800.00	3,600.18	2,924.09	2,213.15	12.65	43.01	-6.32	-81.35	3,484.26	3,505.88	24.36	131.242				

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Pinto 36 State Com #7H - SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O - BHL: 220' FNL, 170													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
3,850.00	3,608.18	3,354.92	2,685.39	13.72	16.77	-7.57	-84.77	3,484.24	3,152.15	3,127.80	24.35	129.434	
3,900.00	3,611.43	3,351.63	2,685.51	14.84	16.71	-9.59	-88.06	3,484.22	3,105.34	3,081.00	24.34	127.578	
3,926.99	3,611.18	3,349.91	2,685.56	15.47	16.68	-11.29	-89.78	3,484.20	3,079.47	3,055.14	24.34	126.538	
4,000.00	3,608.64	3,346.74	2,685.67	17.19	16.63	-3.14	-92.95	3,484.18	3,009.01	2,984.70	24.31	123.764	
4,033.78	3,607.46	3,346.21	2,685.69	18.01	16.62	0.56	-93.48	3,484.18	2,976.44	2,952.12	24.31	122.417	
4,100.00	3,605.15	3,345.76	2,685.71	19.64	16.61	0.60	-93.93	3,484.17	2,912.64	2,888.32	24.33	119.733	
4,200.00	3,601.66	3,345.08	2,685.73	22.17	16.60	0.65	-94.61	3,484.17	2,816.52	2,792.17	24.35	115.669	
4,300.00	3,598.17	3,344.40	2,685.75	24.74	16.59	0.69	-95.29	3,484.16	2,720.68	2,696.30	24.38	111.591	
4,400.00	3,594.68	3,343.72	2,685.78	27.35	16.58	0.74	-95.96	3,484.16	2,625.15	2,600.73	24.42	107.501	
4,500.00	3,591.19	3,343.04	2,685.80	29.98	16.56	0.79	-96.64	3,484.15	2,529.97	2,505.50	24.47	103.400	
4,600.00	3,587.70	3,342.37	2,685.82	32.64	16.55	0.84	-97.32	3,484.15	2,435.17	2,410.64	24.53	99.288	
4,700.00	3,584.21	3,341.69	2,685.85	35.31	16.54	0.89	-98.00	3,484.14	2,340.80	2,316.21	24.60	95.167	
4,800.00	3,580.72	3,341.01	2,685.87	38.00	16.53	0.94	-98.68	3,484.14	2,246.93	2,222.24	24.68	91.039	
4,900.00	3,577.23	3,340.33	2,685.89	40.69	16.52	0.99	-99.35	3,484.14	2,153.60	2,128.82	24.78	86.908	
5,000.00	3,573.74	3,339.65	2,685.92	43.39	16.51	1.04	-100.03	3,484.13	2,060.90	2,036.00	24.90	82.776	
5,100.00	3,570.25	3,338.97	2,685.94	46.10	16.49	1.09	-100.71	3,484.13	1,968.91	1,943.87	25.03	78.650	
5,200.00	3,566.76	3,338.30	2,685.96	48.81	16.48	1.14	-101.39	3,484.12	1,877.74	1,852.55	25.19	74.536	
5,300.00	3,563.27	3,337.62	2,685.99	51.53	16.47	1.19	-102.07	3,484.12	1,787.52	1,762.14	25.38	70.440	
5,400.00	3,559.78	3,336.94	2,686.01	54.25	16.46	1.24	-102.74	3,484.11	1,698.39	1,672.80	25.59	66.375	
5,500.00	3,556.29	3,336.26	2,686.03	56.98	16.45	1.28	-103.42	3,484.11	1,610.53	1,584.70	25.83	62.353	
5,600.00	3,552.80	3,335.58	2,686.05	59.71	16.44	1.33	-104.10	3,484.10	1,524.18	1,498.07	26.10	58.389	
5,700.00	3,549.31	3,334.90	2,686.08	62.44	16.42	1.38	-104.78	3,484.10	1,439.59	1,413.18	26.41	54.502	
5,800.00	3,545.83	3,334.22	2,686.10	65.17	16.41	1.43	-105.46	3,484.09	1,357.10	1,330.34	26.76	50.716	
5,900.00	3,542.34	3,333.55	2,686.12	67.91	16.40	1.48	-106.13	3,484.09	1,277.12	1,249.98	27.14	47.059	
6,000.00	3,538.85	3,332.87	2,686.15	70.64	16.39	1.53	-106.81	3,484.08	1,200.13	1,172.59	27.55	43.563	
6,100.00	3,535.36	3,332.19	2,686.17	73.38	16.38	1.58	-107.49	3,484.08	1,126.77	1,098.79	27.98	40.266	
6,200.00	3,531.87	3,331.51	2,686.19	76.12	16.37	1.63	-108.17	3,484.07	1,057.79	1,029.36	28.43	37.212	
6,300.00	3,528.38	3,330.83	2,686.22	78.86	16.35	1.68	-108.85	3,484.07	994.09	965.23	28.86	34.448	
6,400.00	3,524.89	3,330.15	2,686.24	81.61	16.34	1.73	-109.52	3,484.06	936.75	907.50	29.25	32.022	
6,500.00	3,521.40	3,329.48	2,686.26	84.35	16.33	1.78	-110.20	3,484.06	887.02	857.43	29.59	29.981	
6,600.00	3,517.91	3,328.80	2,686.29	87.09	16.32	1.83	-110.88	3,484.05	846.22	816.38	29.85	28.354	
6,700.00	3,514.42	3,328.12	2,686.31	89.84	16.31	1.88	-111.56	3,484.05	815.71	785.64	30.07	27.127	
6,800.00	3,510.93	3,327.44	2,686.33	92.58	16.30	1.92	-112.24	3,484.04	796.67	766.29	30.37	26.229	
6,900.00	3,507.44	3,326.76	2,686.36	95.33	16.28	1.97	-112.91	3,484.04	789.92	759.01	30.91	25.556	
6,903.55	3,507.32	3,326.74	2,686.36	95.43	16.28	1.98	-112.94	3,484.04	789.91	758.98	30.93	25.536	CC, ES
7,000.00	3,503.95	3,326.08	2,686.38	98.08	16.27	2.02	-113.59	3,484.03	795.78	764.08	31.70	25.105	
7,100.00	3,500.46	3,325.40	2,686.40	100.82	16.26	2.07	-114.27	3,484.03	813.97	781.41	32.57	24.995	SF
7,200.00	3,496.97	3,324.73	2,686.43	103.57	16.25	2.12	-114.95	3,484.02	843.70	810.39	33.31	25.329	
7,300.00	3,493.48	3,324.05	2,686.45	106.32	16.24	2.17	-115.63	3,484.02	883.81	849.98	33.83	26.126	
7,400.00	3,489.99	3,323.37	2,686.47	109.07	16.23	2.22	-116.31	3,484.01	932.96	898.85	34.11	27.353	
7,500.00	3,486.50	3,322.69	2,686.50	111.82	16.21	2.27	-116.98	3,484.01	989.80	955.61	34.18	28.956	
7,600.00	3,483.02	3,322.01	2,686.52	114.57	16.20	2.32	-117.66	3,484.01	1,053.08	1,018.98	34.10	30.880	
7,700.00	3,479.53	3,321.33	2,686.54	117.32	16.19	2.37	-118.34	3,484.00	1,121.72	1,087.81	33.92	33.074	
7,800.00	3,476.04	3,320.66	2,686.57	120.07	16.18	2.42	-119.02	3,484.00	1,194.80	1,161.14	33.66	35.495	
7,900.00	3,472.55	3,319.98	2,686.59	122.82	16.17	2.47	-119.70	3,483.99	1,271.54	1,238.18	33.37	38.108	
8,000.00	3,469.06	3,319.30	2,686.61	125.57	16.16	2.52	-120.37	3,483.99	1,351.34	1,318.28	33.05	40.882	
8,100.00	3,465.57	3,318.62	2,686.64	128.32	16.14	2.56	-121.05	3,483.98	1,433.66	1,400.92	32.74	43.791	
8,200.00	3,462.08	3,317.94	2,686.66	131.07	16.13	2.61	-121.73	3,483.98	1,518.11	1,485.68	32.43	46.815	
8,300.00	3,458.59	3,317.26	2,686.68	133.83	16.12	2.66	-122.41	3,483.97	1,604.35	1,572.22	32.13	49.937	

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Pinto 36 State Com #7H - SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O - BHL: 220' FNL, 170													Offset Site Error: 0.00 usft
Survey Program: O-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (")	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
8,373.92	3,456.01	3,316.76	2,686.70	135.86	16.11	2.70	-122.91	3,483.97	1,669.09	1,637.17	31.91	52.298	



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Pinto 36 State Corn #8H - SHL: 150' FSL, 330' FEL, Sec 36, T18S, R25E, Unit P - BHL: 350' FNL, 350'														Offset Site Error:	0.00 usft
Survey Program: 91-MWD														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)					
0.00	0.00	0.00	0.00	0.00	0.00	100.99	-945.70	4,868.90	4,960.21						
100.00	100.00	45.07	45.07	0.09	0.04	100.99	-945.72	4,868.89	4,959.89	4,959.76	0.13	N/A			
146.59	146.59	91.00	91.00	0.20	0.08	100.99	-945.77	4,868.87	4,959.87	4,959.59	0.28	N/A			
200.00	200.00	124.02	124.02	0.32	0.16	100.99	-945.95	4,868.89	4,959.97	4,959.50	0.47	N/A			
300.00	300.00	195.11	195.10	0.54	0.32	101.01	-947.24	4,869.20	4,960.72	4,959.86	0.86	5,774.426			
400.00	400.00	283.33	283.24	0.77	0.52	101.05	-950.66	4,869.56	4,961.86	4,960.57	1.29	3,846.596			
500.00	500.00	369.27	368.98	0.99	0.74	101.11	-956.55	4,869.55	4,963.18	4,961.45	1.73	2,872.293			
600.00	600.00	455.12	454.52	1.22	0.96	101.20	-963.88	4,869.61	4,964.89	4,962.72	2.18	2,279.908			
700.00	700.00	597.79	596.61	1.44	1.33	101.34	-976.72	4,869.27	4,966.49	4,963.72	2.76	1,797.603			
800.00	800.00	712.30	710.65	1.67	1.61	101.46	-986.99	4,868.05	4,967.21	4,963.94	3.27	1,518.634			
900.00	900.00	794.94	792.97	1.89	1.80	101.55	-994.29	4,867.26	4,968.04	4,964.35	3.69	1,346.465			
1,000.00	1,000.00	970.94	968.33	2.12	2.23	101.72	-1,008.92	4,864.63	4,968.21	4,963.87	4.34	1,143.921			
1,100.00	1,100.00	1,110.25	1,107.02	2.34	2.61	101.87	-1,021.44	4,860.73	4,967.30	4,962.35	4.94	1,004.923			
1,200.00	1,200.00	1,210.06	1,206.39	2.56	2.86	101.97	-1,030.26	4,857.58	4,966.02	4,960.60	5.42	916.611			
1,300.00	1,300.00	1,309.00	1,304.96	2.79	3.09	102.07	-1,038.25	4,854.61	4,964.77	4,958.88	5.88	844.096			
1,400.00	1,400.00	1,353.93	1,349.75	3.01	3.20	102.11	-1,041.63	4,853.53	4,964.05	4,957.84	6.21	798.745			
1,409.75	1,409.75	1,357.94	1,353.75	3.04	3.21	102.12	-1,041.90	4,853.47	4,964.05	4,957.80	6.25	794.710			
1,500.00	1,500.00	1,404.00	1,399.72	3.24	3.32	102.15	-1,044.76	4,853.17	4,964.55	4,957.99	6.56	756.820			
1,600.00	1,600.00	1,566.01	1,561.38	3.46	3.71	102.27	-1,055.15	4,851.24	4,964.69	4,957.52	7.17	692.329			
1,700.00	1,700.00	1,661.37	1,656.52	3.69	3.94	102.35	-1,061.49	4,849.53	4,964.36	4,956.74	7.62	651.250			
1,800.00	1,800.00	3,575.10	2,754.58	3.91	18.83	89.65	29.60	4,850.25	4,954.50	4,932.13	22.37	221.493			
1,900.00	1,900.00	3,572.94	2,754.63	4.14	18.79	89.68	27.44	4,850.25	4,935.07	4,912.45	22.62	218.164			
2,000.00	2,000.00	3,570.79	2,754.67	4.36	18.76	89.70	25.29	4,850.25	4,917.60	4,894.73	22.87	215.032			
2,100.00	2,100.00	3,568.66	2,754.72	4.59	18.72	89.73	23.16	4,850.26	4,902.11	4,878.99	23.11	212.097			
2,200.00	2,200.00	3,566.54	2,754.76	4.81	18.68	89.75	21.05	4,850.26	4,888.61	4,865.26	23.35	209.358			
2,300.00	2,300.00	3,564.45	2,754.81	5.04	18.65	89.78	18.95	4,850.26	4,877.12	4,853.54	23.58	206.812			
2,400.00	2,400.00	3,562.36	2,754.85	5.26	18.61	89.80	16.87	4,850.27	4,867.67	4,843.86	23.81	204.457			
2,500.00	2,500.00	3,560.29	2,754.89	5.49	18.58	89.83	14.80	4,850.27	4,860.25	4,836.22	24.03	202.291			
2,600.00	2,600.00	3,558.24	2,754.93	5.71	18.54	89.85	12.75	4,850.27	4,854.88	4,830.64	24.24	200.311			
2,700.00	2,700.00	3,556.20	2,754.97	5.94	18.51	89.87	10.71	4,850.28	4,851.56	4,827.12	24.44	198.513			
2,800.00	2,800.00	3,554.18	2,755.01	6.16	18.47	89.90	8.69	4,850.28	4,850.30	4,825.67	24.63	196.896			
2,811.02	2,811.02	3,553.96	2,755.02	6.19	18.47	89.90	8.47	4,850.28	4,850.29	4,825.63	24.65	196.728			
2,900.00	2,900.00	3,552.17	2,755.05	6.39	18.44	89.92	6.68	4,850.29	4,851.11	4,826.29	24.82	195.454			
3,000.00	3,000.00	3,550.18	2,755.09	6.61	18.41	89.94	4.69	4,850.29	4,853.97	4,828.97	25.00	194.187			
3,090.63	3,090.63	3,548.39	2,755.13	6.81	18.38	89.97	2.89	4,850.29	4,858.34	4,833.19	25.15	193.184			
3,100.00	3,100.00	3,548.20	2,755.13	6.83	18.37	-4.10	2.70	4,850.29	4,858.80	4,833.64	25.16	193.100			
3,150.00	3,149.87	3,546.98	2,755.16	6.93	18.35	-4.08	1.49	4,850.29	4,858.74	4,833.52	25.22	192.635			
3,200.00	3,199.20	3,545.44	2,755.19	7.04	18.33	-4.10	-0.06	4,850.30	4,854.42	4,829.14	25.28	192.024			
3,250.00	3,247.53	3,543.58	2,755.23	7.15	18.29	-4.15	-1.91	4,850.30	4,845.85	4,820.52	25.33	191.274			
3,300.00	3,294.41	3,541.43	2,755.27	7.28	18.26	-4.23	-4.06	4,850.30	4,833.10	4,807.72	25.39	190.387			
3,350.00	3,339.41	3,539.01	2,755.32	7.43	18.22	-4.34	-6.48	4,850.31	4,816.25	4,790.82	25.43	189.368			
3,400.00	3,382.13	3,536.35	2,755.37	7.64	18.17	-4.50	-9.15	4,850.31	4,795.42	4,769.94	25.48	188.220			
3,450.00	3,422.16	3,533.46	2,755.42	7.90	18.12	-4.71	-12.04	4,850.32	4,770.74	4,745.22	25.52	186.945			
3,500.00	3,459.14	3,530.37	2,755.48	8.25	18.07	-4.99	-15.12	4,850.32	4,742.39	4,716.83	25.56	185.552			
3,550.00	3,492.72	3,527.11	2,755.55	8.70	18.01	-5.35	-18.38	4,850.33	4,710.55	4,684.96	25.59	184.049			
3,600.00	3,522.61	3,523.72	2,755.61	9.26	17.96	-5.82	-21.77	4,850.33	4,675.46	4,649.83	25.63	182.451			
3,650.00	3,548.51	3,520.21	2,755.68	9.94	17.90	-6.44	-25.28	4,850.34	4,637.37	4,611.71	25.65	180.772			
3,700.00	3,570.20	3,516.63	2,755.74	10.74	17.84	-7.30	-28.86	4,850.35	4,596.55	4,570.88	25.67	179.033			
3,750.00	3,587.48	3,513.00	2,755.81	11.65	17.77	-8.51	-32.49	4,850.35	4,553.32	4,527.64	25.69	177.252			

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Pinto 36 State Com #8H - SHL: 150' FSL, 330' FEL, Sec 36, T18S, R25E, Unit P - BHL: 350' FNL, 350'													Offset Site Error: 0.00 usft
Survey Program: 91-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Between Centres (usft)	Between Ellipses (usft)					
3,800.00	3,600.18	3,509.35	2,755.88	12.65	17.71	-10.34	-36.14	4,850.36	4,508.02	4,482.32	25.69	175.450	
3,850.00	3,608.18	3,505.72	2,755.95	13.72	17.65	-13.34	-39.76	4,850.37	4,460.99	4,435.30	25.69	173.647	
3,900.00	3,611.43	3,502.14	2,756.01	14.84	17.59	-19.03	-43.34	4,850.37	4,412.63	4,386.95	25.68	171.859	
3,926.99	3,611.18	3,500.24	2,756.05	15.47	17.56	-24.76	-45.25	4,850.38	4,386.11	4,360.44	25.67	170.884	
4,000.00	3,608.64	3,496.48	2,756.12	17.19	17.49	-11.51	-49.00	4,850.38	4,314.01	4,288.37	25.64	168.265	
4,033.78	3,607.46	3,495.66	2,756.13	18.01	17.48	-4.98	-49.82	4,850.38	4,280.63	4,254.99	25.64	166.971	
4,100.00	3,605.15	3,494.62	2,756.15	19.64	17.46	-4.89	-50.86	4,850.39	4,215.19	4,189.54	25.64	164.385	
4,200.00	3,601.66	3,493.05	2,756.18	22.17	17.43	-4.75	-52.44	4,850.39	4,116.41	4,090.76	25.65	160.468	
4,300.00	3,598.17	3,491.47	2,756.20	24.74	17.41	-4.61	-54.01	4,850.39	4,017.70	3,992.03	25.67	156.535	
4,400.00	3,594.68	3,489.90	2,756.23	27.35	17.38	-4.48	-55.59	4,850.39	3,919.05	3,893.37	25.68	152.587	
4,500.00	3,591.19	3,488.32	2,756.26	29.98	17.35	-4.34	-57.16	4,850.40	3,820.47	3,794.76	25.71	148.622	
4,600.00	3,587.70	3,486.75	2,756.29	32.64	17.33	-4.20	-58.74	4,850.40	3,721.97	3,696.23	25.73	144.643	
4,700.00	3,584.21	3,485.17	2,756.32	35.31	17.30	-4.06	-60.31	4,850.40	3,623.54	3,597.78	25.76	140.648	
4,800.00	3,580.72	3,483.59	2,756.34	38.00	17.27	-3.92	-61.89	4,850.40	3,525.21	3,499.41	25.80	136.637	
4,900.00	3,577.23	3,481.00	2,756.39	40.69	17.23	-3.70	-64.48	4,850.41	3,426.97	3,401.15	25.82	132.709	
5,000.00	3,573.74	3,480.27	2,756.40	43.39	17.22	-3.63	-65.21	4,850.41	3,328.83	3,302.94	25.89	128.587	
5,100.00	3,570.25	3,478.24	2,756.44	46.10	17.18	-3.45	-67.24	4,850.41	3,230.81	3,204.87	25.94	124.570	
5,200.00	3,566.76	3,476.24	2,756.47	48.81	17.15	-3.28	-69.24	4,850.42	3,132.91	3,106.92	25.99	120.534	
5,300.00	3,563.27	3,474.28	2,756.51	51.53	17.12	-3.10	-71.20	4,850.42	3,035.15	3,009.09	26.06	116.480	
5,400.00	3,559.78	3,472.36	2,756.54	54.25	17.09	-2.93	-73.12	4,850.42	2,937.54	2,911.41	26.13	112.409	
5,500.00	3,556.29	3,470.47	2,756.57	56.98	17.06	-2.77	-75.01	4,850.42	2,840.09	2,813.87	26.22	108.321	
5,600.00	3,552.80	3,468.61	2,756.60	59.71	17.02	-2.60	-76.87	4,850.43	2,742.83	2,716.51	26.32	104.218	
5,700.00	3,549.31	3,466.78	2,756.63	62.44	16.99	-2.44	-78.70	4,850.43	2,645.76	2,619.33	26.43	100.102	
5,800.00	3,545.83	3,464.99	2,756.66	65.17	16.96	-2.28	-80.49	4,850.43	2,548.93	2,522.37	26.56	95.973	
5,900.00	3,542.34	3,463.23	2,756.69	67.91	16.94	-2.13	-82.25	4,850.43	2,452.35	2,425.64	26.70	91.834	
6,000.00	3,538.85	3,461.49	2,756.72	70.64	16.91	-1.98	-83.99	4,850.43	2,356.05	2,329.18	26.87	87.688	
6,100.00	3,535.36	3,459.79	2,756.75	73.38	16.88	-1.83	-85.69	4,850.43	2,260.07	2,233.01	27.06	83.536	
6,200.00	3,531.87	3,458.11	2,756.78	76.12	16.85	-1.68	-87.37	4,850.43	2,164.45	2,137.19	27.27	79.383	
6,300.00	3,528.38	3,456.46	2,756.81	78.86	16.82	-1.53	-89.01	4,850.43	2,069.25	2,041.75	27.50	75.233	
6,400.00	3,524.89	3,454.84	2,756.83	81.61	16.80	-1.39	-90.63	4,850.43	1,974.52	1,946.75	27.77	71.090	
6,500.00	3,521.40	3,453.25	2,756.86	84.35	16.77	-1.25	-92.23	4,850.43	1,880.34	1,852.26	28.08	66.962	
6,600.00	3,517.91	3,451.68	2,756.89	87.09	16.74	-1.11	-93.80	4,850.43	1,786.79	1,758.36	28.43	62.855	
6,700.00	3,514.42	3,450.14	2,756.91	89.84	16.72	-0.97	-95.34	4,850.43	1,693.97	1,665.15	28.82	58.779	
6,800.00	3,510.93	3,448.62	2,756.94	92.58	16.69	-0.84	-96.86	4,850.43	1,602.01	1,572.75	29.26	54.744	
6,900.00	3,507.44	3,447.12	2,756.96	95.33	16.67	-0.71	-98.36	4,850.43	1,511.08	1,481.31	29.77	50.763	
7,000.00	3,503.95	3,445.65	2,756.98	98.08	16.64	-0.58	-99.83	4,850.42	1,421.36	1,391.03	30.34	46.853	
7,100.00	3,500.46	3,444.20	2,757.01	100.82	16.62	-0.45	-101.28	4,850.42	1,333.11	1,302.13	30.98	43.031	
7,200.00	3,496.97	3,442.77	2,757.03	103.57	16.60	-0.32	-102.71	4,850.42	1,246.63	1,214.93	31.70	39.320	
7,300.00	3,493.48	3,441.37	2,757.05	106.32	16.57	-0.20	-104.11	4,850.42	1,162.32	1,129.80	32.52	35.745	
7,400.00	3,489.99	3,439.98	2,757.07	109.07	16.55	-0.07	-105.49	4,850.42	1,080.69	1,047.27	33.42	32.337	
7,500.00	3,486.50	3,438.62	2,757.10	111.82	16.53	0.05	-106.86	4,850.42	1,002.39	967.98	34.41	29.130	
7,600.00	3,483.02	3,437.28	2,757.12	114.57	16.51	0.17	-108.20	4,850.41	928.26	892.79	35.48	26.166	
7,700.00	3,479.53	3,435.95	2,757.14	117.32	16.48	0.28	-109.52	4,850.41	859.39	822.81	36.58	23.491	
7,800.00	3,476.04	3,434.65	2,757.16	120.07	16.46	0.40	-110.83	4,850.41	797.14	759.46	37.68	21.154	
7,900.00	3,472.55	3,433.36	2,757.18	122.82	16.44	0.51	-112.11	4,850.41	743.18	704.49	38.69	19.208	
8,000.00	3,469.06	3,432.10	2,757.20	125.57	16.42	0.62	-113.38	4,850.41	699.43	659.90	39.53	17.694	
8,100.00	3,465.57	3,430.85	2,757.22	128.32	16.40	0.73	-114.62	4,850.40	667.88	627.72	40.17	16.628	
8,200.00	3,462.08	3,429.62	2,757.24	131.07	16.38	0.84	-115.85	4,850.40	650.34	609.62	40.71	15.973	
8,265.67	3,459.79	3,428.82	2,757.25	132.88	16.37	0.91	-116.65	4,850.40	647.01	605.90	41.12	15.737 CC, ES	

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



TDS
Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3523.00usft (Silver Oak 3)
Reference Site:	Pinto 36 State #27H	MD Reference:	KB @ 3523.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Pinto 36 State Com #8H - SHL: 150' FSL, 330' FEL, Sec 36, T18S, R25E, Unit P - BHL: 350' FNL, 350'												Offset Site Error:	0.00 usft
Survey Program: 91-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
8,300.00	3,458.59	3,428.41	2,757.26	133.83	16.36	0.95	-117.07	4,850.40	647.92	606.58	41.34	15.672 SF	
8,373.92	3,456.01	3,427.52	2,757.27	135.86	16.34	1.03	-117.95	4,850.40	656.01	614.19	41.82	15.686	



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1
Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Pinto 36 State Com #9H - Pinto 36 State Com #9H - Lateral #1 - Lateral #1													Offset Site Error:	0.00 usft
Survey Program: 100-VES-ISCWSA-GYRO-3, 2131-MWD													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
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		
0.00	0.00	7,682.00	2,628.25	0.00	139.12	160.88	-638.83	221.44	2,762.27					
100.00	100.00	7,682.00	2,628.25	0.09	139.12	160.88	-638.83	221.44	2,665.43	2,613.77	51.66	51.600		
200.00	200.00	7,682.00	2,628.25	0.32	139.12	160.88	-638.83	221.44	2,568.82	2,516.40	52.42	49.001		
300.00	300.00	7,682.00	2,628.25	0.54	139.12	160.88	-638.83	221.44	2,472.49	2,419.22	53.27	46.411		
400.00	400.00	7,682.00	2,628.25	0.77	139.12	160.88	-638.83	221.44	2,376.46	2,322.25	54.21	43.836		
500.00	500.00	7,682.00	2,628.25	0.99	139.12	160.88	-638.83	221.44	2,280.77	2,225.52	55.25	41.279		
600.00	600.00	7,682.00	2,628.25	1.22	139.12	160.88	-638.83	221.44	2,185.46	2,129.06	56.41	38.744		
700.00	700.00	7,682.00	2,628.25	1.44	139.12	160.88	-638.83	221.44	2,090.60	2,032.90	57.69	36.236		
800.00	800.00	7,682.00	2,628.25	1.67	139.12	160.88	-638.83	221.44	1,996.23	1,937.11	59.13	33.760		
900.00	900.00	7,682.00	2,628.25	1.89	139.12	160.88	-638.83	221.44	1,902.45	1,841.71	60.74	31.324		
1,000.00	1,000.00	7,682.00	2,628.25	2.12	139.12	160.88	-638.83	221.44	1,809.32	1,746.79	62.54	28.932		
1,100.00	1,100.00	7,682.00	2,628.25	2.34	139.12	160.88	-638.83	221.44	1,716.97	1,652.41	64.56	26.594		
1,200.00	1,200.00	7,682.00	2,628.25	2.56	139.12	160.88	-638.83	221.44	1,625.53	1,558.68	66.85	24.316		
1,300.00	1,300.00	7,682.00	2,628.25	2.79	139.12	160.88	-638.83	221.44	1,535.16	1,465.72	69.43	22.110		
1,400.00	1,400.00	7,682.00	2,628.25	3.01	139.12	160.88	-638.83	221.44	1,446.05	1,373.69	72.36	19.984		
1,500.00	1,500.00	7,682.00	2,628.25	3.24	139.12	160.88	-638.83	221.44	1,358.46	1,282.78	75.68	17.950		
1,600.00	1,600.00	7,682.00	2,628.25	3.46	139.12	160.88	-638.83	221.44	1,272.70	1,193.25	79.45	16.019		
1,700.00	1,700.00	7,682.00	2,628.25	3.69	139.12	160.88	-638.83	221.44	1,189.16	1,105.44	83.72	14.203		
1,800.00	1,800.00	7,682.00	2,628.25	3.91	139.12	160.88	-638.83	221.44	1,108.36	1,019.79	88.56	12.515		
1,900.00	1,900.00	7,682.00	2,628.25	4.14	139.12	160.88	-638.83	221.44	1,030.92	936.92	94.00	10.967		
2,000.00	2,000.00	7,682.00	2,628.25	4.36	139.12	160.88	-638.83	221.44	957.68	857.63	100.05	9.572		
2,100.00	2,100.00	7,682.00	2,628.25	4.59	139.12	160.88	-638.83	221.44	889.67	783.01	106.66	8.341		
2,200.00	2,200.00	7,682.00	2,628.25	4.81	139.12	160.88	-638.83	221.44	828.16	714.50	113.66	7.286		
2,300.00	2,300.00	7,682.00	2,628.25	5.04	139.12	160.88	-638.83	221.44	774.73	654.00	120.73	6.417		
2,400.00	2,400.00	7,682.00	2,628.25	5.26	139.12	160.88	-638.83	221.44	731.13	603.78	127.35	5.741		
2,500.00	2,500.00	7,682.00	2,628.25	5.49	139.12	160.88	-638.83	221.44	699.22	566.42	132.80	5.265		
2,600.00	2,600.00	7,682.00	2,628.25	5.71	139.12	160.88	-638.83	221.44	680.63	544.33	136.30	4.994		
2,678.25	2,678.25	7,682.00	2,628.25	5.89	139.12	160.88	-638.83	221.44	676.12	538.84	137.28	4.925 CC, ES, SF		
2,700.00	2,700.00	7,682.00	2,628.25	5.94	139.12	160.88	-638.83	221.44	676.47	539.21	137.25	4.929		
2,800.00	2,800.00	7,682.00	2,628.25	6.16	139.12	160.88	-638.83	221.44	686.99	551.48	135.51	5.070		
2,900.00	2,900.00	7,682.00	2,628.25	6.39	139.12	160.88	-638.83	221.44	711.55	580.15	131.41	5.415		
3,000.00	3,000.00	7,682.00	2,628.25	6.61	139.12	160.88	-638.83	221.44	748.77	623.14	125.64	5.960		
3,090.63	3,090.63	7,682.00	2,628.25	6.81	139.12	160.88	-638.83	221.44	791.95	672.35	119.61	6.621		
3,100.00	3,100.00	7,682.00	2,628.25	6.83	139.12	66.23	-638.83	221.44	796.85	677.88	118.96	6.698		
3,150.00	3,149.87	7,682.00	2,628.25	6.93	139.12	63.14	-638.83	221.44	823.27	707.68	115.59	7.122		
3,200.00	3,199.20	7,682.00	2,628.25	7.04	139.12	60.07	-638.83	221.44	850.04	737.69	112.35	7.566		
3,250.00	3,247.53	7,682.00	2,628.25	7.15	139.12	57.09	-638.83	221.44	876.88	767.61	109.27	8.025		
3,300.00	3,294.41	7,682.00	2,628.25	7.28	139.12	54.22	-638.83	221.44	903.55	797.19	106.36	8.495		
3,350.00	3,339.41	7,682.00	2,628.25	7.43	139.12	51.51	-638.83	221.44	929.84	826.18	103.66	8.970		
3,400.00	3,382.13	7,682.00	2,628.25	7.64	139.12	48.98	-638.83	221.44	955.53	854.38	101.15	9.447		
3,450.00	3,422.16	7,682.00	2,628.25	7.90	139.12	46.64	-638.83	221.44	980.46	881.61	98.85	9.919		
3,500.00	3,459.14	7,682.00	2,628.25	8.25	139.12	44.49	-638.83	221.44	1,004.45	907.69	96.77	10.380		
3,550.00	3,492.72	7,682.00	2,628.25	8.70	139.12	42.54	-638.83	221.44	1,027.36	932.46	94.90	10.826		
3,600.00	3,522.61	7,670.24	2,628.52	9.26	138.80	40.50	-639.11	233.20	1,048.99	955.91	93.09	11.269		
3,650.00	3,548.51	7,626.96	2,629.50	9.94	137.61	38.18	-640.17	276.44	1,068.00	976.87	91.13	11.720		
3,700.00	3,570.20	7,582.93	2,630.50	10.74	136.39	36.37	-641.27	320.46	1,083.71	994.19	89.52	12.106		
3,750.00	3,587.48	7,538.22	2,631.51	11.65	135.16	35.02	-642.56	365.13	1,095.94	1,007.68	88.26	12.418		
3,800.00	3,600.18	7,492.98	2,632.53	12.65	133.91	34.08	-644.05	410.33	1,104.53	1,017.21	87.32	12.649		
3,850.00	3,608.18	7,447.85	2,633.44	13.72	132.67	33.53	-645.68	455.43	1,109.41	1,022.71	86.70	12.796		

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



TDS
Anticollision Report



Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Offset Design Pinto 36 State Com #9H - Pinto 36 State Com #9H - Lateral #1 - Lateral #1														Offset Site Error:	0.00 usft
Survey Program: 100-VES-ISCWSA-GYRO-3, 2131-MWD														Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Tooface (')	Distance		Minimum Separation (usft)	Separation Factor	Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)							
3,900.00	3,611.43	7,401.74	2,634.27	14.84	131.40	33.34	-647.51	501.50	1,110.51	1,024.15	86.36	12.860			
3,926.99	3,611.18	7,376.21	2,634.69	15.47	130.69	33.39	-648.56	527.00	1,109.49	1,023.21	86.28	12.859			
4,000.00	3,608.64	7,294.34	2,636.03	17.19	128.43	33.49	-652.02	608.79	1,106.02	1,019.85	86.16	12.836			
4,033.78	3,607.46	7,236.54	2,638.06	18.01	126.84	33.65	-654.12	666.51	1,104.27	1,018.32	85.96	12.847			
4,100.00	3,605.15	7,155.15	2,642.07	19.64	124.60	33.88	-656.04	747.78	1,099.94	1,013.96	85.98	12.793			
4,200.00	3,601.66	7,057.79	2,646.89	22.17	121.93	34.10	-657.16	845.01	1,092.75	1,006.43	86.31	12.660			
4,300.00	3,598.17	6,961.81	2,651.37	24.74	119.29	34.34	-658.70	940.87	1,086.06	999.34	86.72	12.523			
4,400.00	3,594.68	6,865.28	2,655.75	27.35	116.63	34.59	-660.55	1,037.29	1,079.67	992.51	87.16	12.387			
4,500.00	3,591.19	6,733.34	2,662.33	29.98	113.01	34.85	-660.69	1,169.05	1,071.89	985.00	86.89	12.336			
4,600.00	3,587.70	6,638.90	2,667.36	32.64	110.42	34.97	-659.06	1,263.34	1,062.82	975.64	87.18	12.191			
4,700.00	3,584.21	6,552.58	2,670.14	35.31	108.05	34.98	-656.52	1,349.57	1,054.77	967.33	87.44	12.062			
4,800.00	3,580.72	6,458.43	2,672.31	38.00	105.47	34.97	-653.89	1,443.66	1,047.56	960.05	87.51	11.971			
4,900.00	3,577.23	6,375.00	2,674.35	40.69	103.18	35.01	-652.57	1,527.05	1,041.01	953.12	87.89	11.844			
5,000.00	3,573.74	6,279.00	2,676.28	43.39	100.54	35.13	-652.99	1,623.03	1,035.89	947.73	88.16	11.750			
5,100.00	3,570.25	6,191.58	2,677.79	46.10	98.13	35.30	-654.95	1,710.42	1,031.98	943.29	88.69	11.636			
5,200.00	3,566.76	6,093.21	2,680.36	48.81	95.42	35.59	-658.58	1,808.68	1,028.27	939.05	89.22	11.525			
5,300.00	3,563.27	5,999.92	2,683.54	51.53	92.85	35.97	-663.66	1,901.78	1,024.98	934.98	90.00	11.389			
5,400.00	3,559.78	5,908.77	2,686.08	54.25	90.34	36.34	-669.00	1,992.73	1,022.47	931.67	90.80	11.261			
5,500.00	3,556.29	5,813.40	2,688.16	56.98	87.72	36.72	-674.83	2,087.90	1,020.66	929.13	91.53	11.151			
5,600.00	3,552.80	5,677.73	2,693.06	59.71	83.99	37.29	-682.37	2,223.27	1,017.45	925.59	91.86	11.076			
5,700.00	3,549.31	5,564.37	2,698.29	62.44	80.87	37.63	-684.66	2,336.48	1,011.27	919.11	92.17	10.972			
5,800.00	3,545.83	5,474.83	2,701.18	65.17	78.41	37.79	-685.00	2,425.97	1,005.28	912.62	92.67	10.848			
5,900.00	3,542.34	5,388.85	2,703.16	67.91	76.05	37.97	-686.25	2,511.92	1,000.67	907.42	93.24	10.732			
6,000.00	3,538.85	5,290.51	2,704.92	70.64	73.34	38.20	-688.75	2,610.21	997.14	903.47	93.67	10.645			
6,100.00	3,535.36	5,189.40	2,708.47	73.38	70.56	38.55	-692.38	2,711.19	992.94	898.70	94.25	10.535			
6,200.00	3,531.87	5,082.90	2,711.85	76.12	67.64	38.91	-696.45	2,817.56	989.22	894.47	94.75	10.440			
6,300.00	3,528.38	4,984.20	2,715.15	78.86	64.93	39.19	-698.64	2,916.17	984.36	889.11	95.25	10.334			
6,400.00	3,524.89	4,887.04	2,717.70	81.61	62.26	39.46	-701.10	3,013.27	980.28	884.51	95.76	10.237			
6,500.00	3,521.40	4,780.29	2,719.53	84.35	59.33	39.63	-702.08	3,120.00	975.89	879.96	95.93	10.173			
6,600.00	3,517.91	4,689.24	2,721.54	87.09	56.83	39.82	-703.26	3,211.02	971.39	874.96	96.43	10.073			
6,700.00	3,514.42	4,573.00	2,725.13	89.84	53.65	40.15	-705.92	3,327.17	966.87	870.22	96.66	10.003			
6,800.00	3,510.93	4,478.00	2,729.03	92.58	51.05	40.47	-708.24	3,422.06	961.68	864.37	97.31	9.883			
6,900.00	3,507.44	4,391.99	2,731.91	95.33	48.70	40.77	-711.06	3,507.97	957.60	859.49	98.11	9.760			
7,000.00	3,503.95	4,295.21	2,734.78	98.08	46.05	41.12	-714.75	3,604.65	954.23	855.46	98.77	9.661			
7,100.00	3,500.46	4,175.67	2,739.96	100.82	42.79	41.60	-719.06	3,723.99	949.70	850.53	99.18	9.576			
7,200.00	3,496.97	4,078.58	2,744.25	103.57	40.14	41.98	-722.08	3,820.94	944.85	844.97	99.89	9.459			
7,300.00	3,493.48	3,957.41	2,749.22	106.32	36.84	42.32	-723.06	3,941.99	938.75	838.79	99.96	9.391			
7,400.00	3,489.99	3,852.95	2,755.00	109.07	34.01	42.63	-722.98	4,046.29	931.01	830.63	100.39	9.274			
7,500.00	3,486.50	3,760.25	2,759.53	111.82	31.50	42.88	-722.72	4,138.88	923.65	822.65	101.00	9.145			
7,600.00	3,483.02	3,668.54	2,763.65	114.57	29.02	43.16	-723.27	4,230.50	917.19	815.51	101.68	9.020			
7,700.00	3,479.53	3,574.13	2,767.55	117.32	26.48	43.46	-724.51	4,324.82	911.51	809.17	102.34	8.907			
7,800.00	3,476.04	3,474.01	2,771.65	120.07	23.81	43.80	-726.23	4,424.84	906.16	803.23	102.93	8.804			
7,900.00	3,472.55	3,378.46	2,776.87	122.82	21.28	44.25	-729.22	4,520.20	900.84	797.02	103.82	8.677			
8,000.00	3,469.06	3,285.74	2,781.98	125.57	18.86	44.74	-733.15	4,612.69	896.33	791.49	104.84	8.550			
8,100.00	3,465.57	3,181.10	2,786.63	128.32	16.15	45.22	-737.15	4,717.14	892.36	786.76	105.60	8.451			
8,200.00	3,462.08	3,013.00	2,783.66	131.07	11.90	44.53	-721.87	4,884.09	883.45	780.60	102.85	8.590			
8,300.00	3,458.59	2,967.65	2,775.81	133.83	10.84	43.67	-710.21	4,927.17	874.32	771.16	103.17	8.475			
8,373.92	3,456.01	2,939.39	2,767.94	135.86	10.21	42.94	-701.98	4,953.02	872.00	768.90	103.10	8.458			

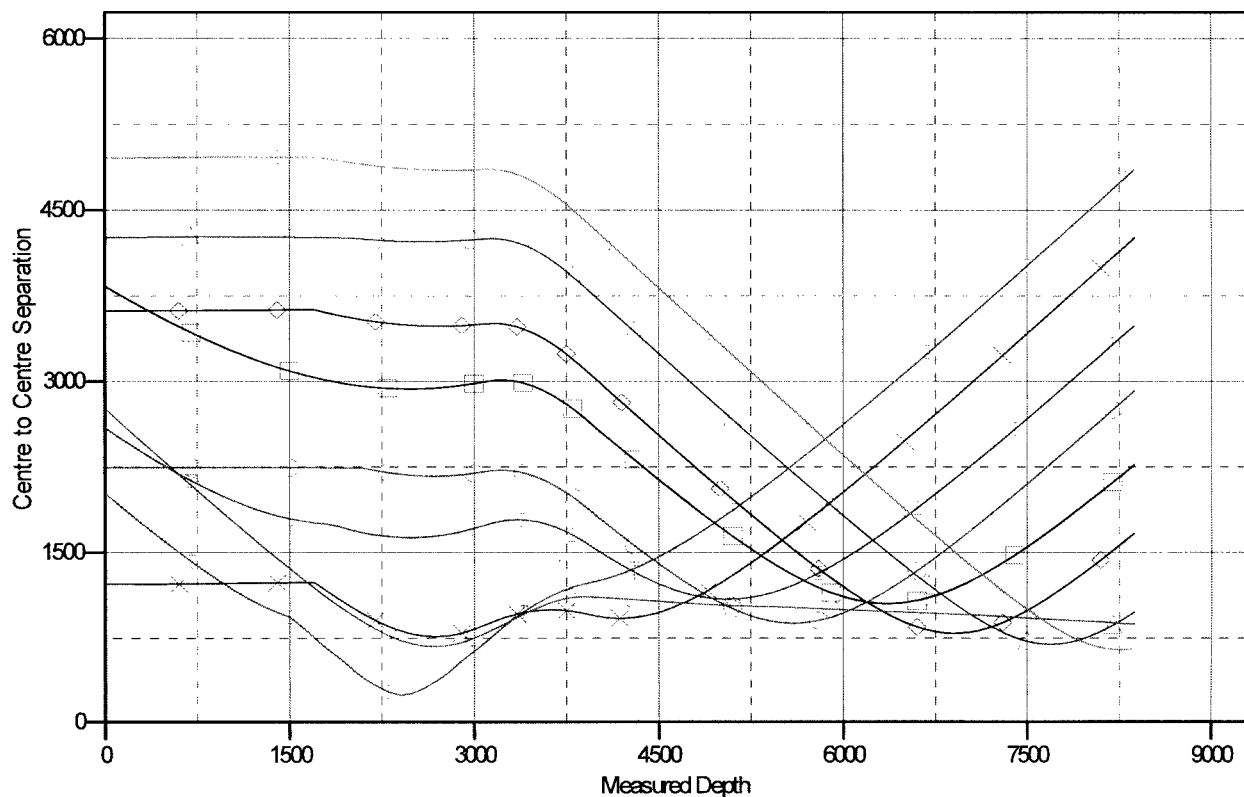
Company: COG Operating LLC
Project: Eddy County, NM (NAD-27 2015)
Reference Site: Pinto 36 State #27H
Site Error: 0.00 usft
Reference Well: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Well Error: 0.00 usft
Reference Wellbore: BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P
Reference Design: Design #1

Local Co-ordinate Reference: Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
TVD Reference: KB @ 3523.00usft (Silver Oak 3)
MD Reference: KB @ 3523.00usft (Silver Oak 3)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB @ 3523.00usft (Silver Oak 3)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: -0.06°

Ladder Plot



LEGEND

- ▮ Pinto 36 State Com #4H, OH, OHV0
- ▮ Pinto 36 State Com #2H, OH, OHV0
- ▮ SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O, BHL: 220' FNL, 170' FEL, Sec 36, T18S, R25E, Unit B, Design #3 V0



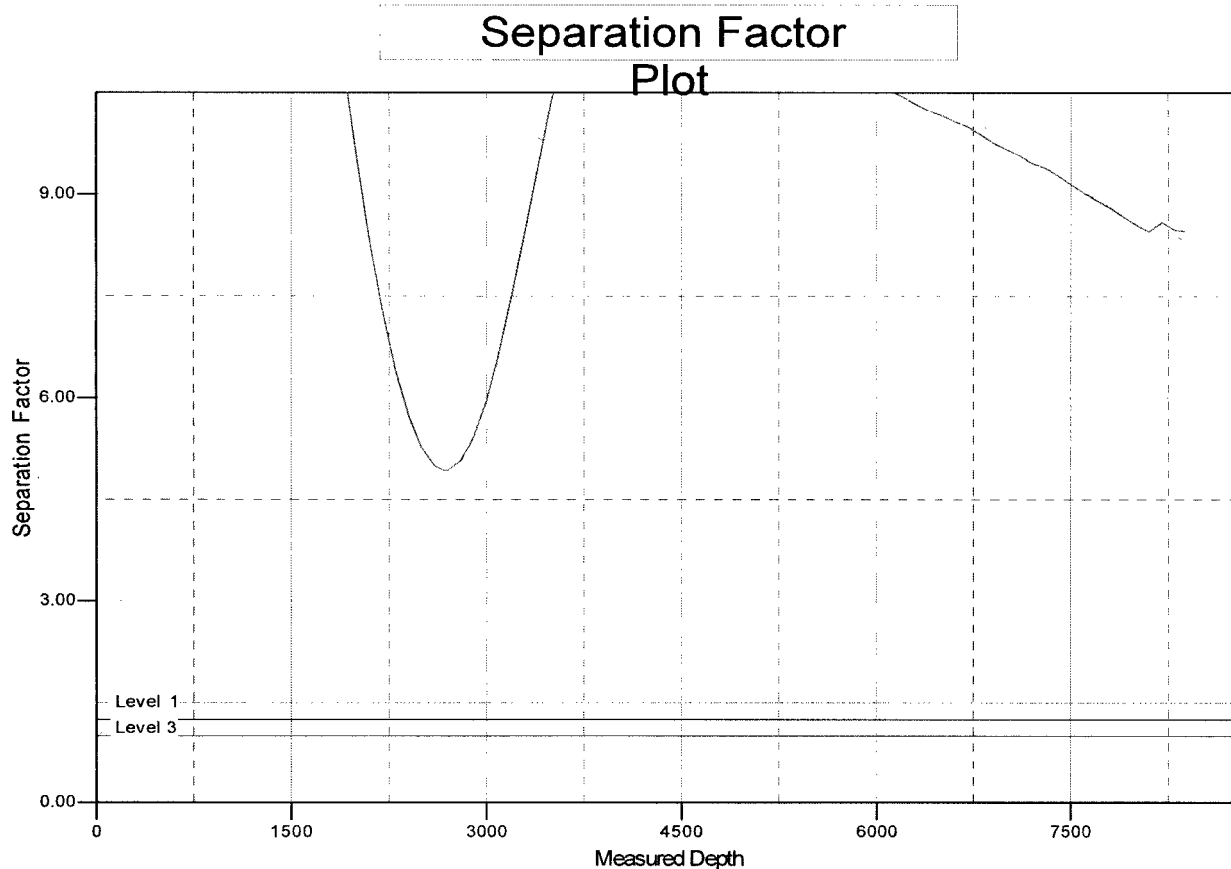
TDS
Anticollision Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M
Project:	Eddy County, NM (NAD-27 2015)	TVD Reference:	KB @ 3523.00usft (Silver Oak 3)
Reference Site:	Pinto 36 State #27H	MD Reference:	KB @ 3523.00usft (Silver Oak 3)
Site Error:	0.00 usft	North Reference:	Grid
Reference Well:	SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit M	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore:	BHL: 990' FSL, 220' FEL, Sec 36, T18S, R25E, Unit P	Database:	EDM 5000.1 Single User Db
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 3523.00usft (Silver Oak 3)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: SHL: 990' FSL, 150' FWL, Sec 36, T18S, R25E, Unit
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: -0.06"



LEGEND

- ▮ Pinto 36 State Com #4H, OH, OH V0
- ▮ Pinto 36 State Com #2H, OH, OH V0
- ▮ SHL: 150' FSL, 1700' FEL, Sec 36, T18S, R25E, Unit O, BHL: 220' FNL, 170' FEL, Sec 36, T18S, R25E, Unit B, Design #3 V0