

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

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

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

SUBMIT IN TRIPLICATE - Other instructions on reverse side

5. Lease Serial No.
NMNM118726
6. If Indian, Allottee or Tribe Name
7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.
MONET FEDERAL COM 9H
9. API Well No.
30-025-42766
10. Field and Pool, or Exploratory
RED HILLS; UBS SHALE

11. County or Parish, and State
LEA COUNTY, NM

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

2. Name of Operator
COG OPERATING LLC
- Contact: MAYTE X REYES
E-Mail: mreyes1@concho.com

- 3a. Address
2208 WEST MAIN STREET
ARTESIA, NM 88210

- 3b. Phone No. (include area code)
Ph: 575-748-6945

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Sec 4 T25S R33E NWNW 190FNL 1020FWL

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

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A PD
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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

COG Operating LLC, respectfully requests approval for the following changes to the original approved APD.

BHL
From: 330' FSL & 1311' FWL
To: 330' FSL & 990' FWL
C102 attached.

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

Drilling Changes:

This well has had a change in its bottom hole location. It will be drilled to a depth of 13810? at a final TVD of 9300?. This will be in the upper Avalon shale formation. This sundry includes a directional plan reflecting the TD and the BHL change.

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

Electronic Submission #325624 verified by the BLM Well Information System
For COG OPERATING LLC, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 12/23/2015 ()

Name (Printed/Typed) MAYTE X REYES

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 12/07/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

APPROVED
Kenneth Rennick
JAN 17 2016
PETROLEUM ENGINEER

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

JAN 29 2016

Additional data for EC transaction #325624 that would not fit on the form

32. Additional remarks, continued

No change is required to the Surf or Intermediate setting depths. I would like to run 9 5/8?? 40# BTC versus the LTC the apd reflects. However the cement values have changed for all three strings.

Surf: 600 sx lead 42% excess for interval
250 sxs Tail

Int: 1750 sx Lead 100% excess
200 sx Tail

Production: 950 sx lead 100% excess
1200 sx Tail

This well will also be drilled from Intermediate setting point to TD with an 8 ??? bit not switched from 7 7/8?? to 8 ??? like the APD suggests.

COG respectfully requests approval to remove the flex hose variance report from the original approved APD.

MONET FEDERAL COM 9H
API: 30-025-42766
COG Operating LLC
Section 4, T. 25 S., R 33 E.

Original COA still applies except for the replacement of the requirements needed for a Communitization Agreement. See the following:

Communitization Agreement:

1. The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
2. If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
3. In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

KGR 01172016



COG Operating, LLC

Lea County, NM

Sec 4, T25S, R33E

Monet Federal #9H

Wellbore #1

Design #1

DDC Anticollision Report

03 December, 2015



Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Monet Federal #9H
Project:	Lea County, NM	TVD Reference:	well @ 3480.0usft (McVay #7)
Reference Site:	Sec 4, T25S, R33E	MD Reference:	well @ 3480.0usft (McVay #7)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	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 10,000.0 usft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	12/3/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	13,810.2	Design #1 (Wellbore #1)	MWD default	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 4, T25S, R33E						
Monet Federal #10H - Pilot Hole - Design #1	8,828.6	8,829.5	610.0	570.6	15.481	CC
Monet Federal #10H - Pilot Hole - Design #1	8,900.0	8,899.7	610.1	570.4	15.379	ES
Monet Federal #10H - Pilot Hole - Design #1	9,025.0	9,015.1	612.9	572.8	15.284	SF
Monet Federal #10H - Wellbore #1 - Design #1	8,830.5	8,831.4	610.0	570.6	15.481	CC
Monet Federal #10H - Wellbore #1 - Design #1	13,810.8	13,847.7	611.2	434.4	3.457	ES, SF

Offset Design											Offset Site Error:	0.0 usft
Sec 4, T25S, R33E - Monet Federal #10H - Pilot Hole - Design #1											Offset Well Error:	0.0 usft
Survey Program: 0-MWD default												
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning
0.0	0.0	1.0	1.0	0.0	0.0	-90.35	-3.8	-610.0	610.0			
100.0	100.0	101.0	101.0	0.1	0.1	-90.35	-3.8	-610.0	610.0	609.8	3,230.794	
200.0	200.0	201.0	201.0	0.3	0.3	-90.35	-3.8	-610.0	610.0	609.3	955.588	
300.0	300.0	301.0	301.0	0.5	0.5	-90.35	-3.8	-610.0	610.0	608.9	560.717	
400.0	400.0	401.0	401.0	0.8	0.8	-90.35	-3.8	-610.0	610.0	608.4	396.765	
500.0	500.0	501.0	501.0	1.0	1.0	-90.35	-3.8	-610.0	610.0	608.0	306.999	
600.0	600.0	601.0	601.0	1.2	1.2	-90.35	-3.8	-610.0	610.0	607.5	250.357	
700.0	700.0	701.0	701.0	1.4	1.4	-90.35	-3.8	-610.0	610.0	607.1	211.361	
800.0	800.0	801.0	801.0	1.7	1.7	-90.35	-3.8	-610.0	610.0	606.7	182.875	
900.0	900.0	901.0	901.0	1.9	1.9	-90.35	-3.8	-610.0	610.0	606.2	161.156	
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-90.35	-3.8	-610.0	610.0	605.8	144.048	
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	-90.35	-3.8	-610.0	610.0	605.3	130.224	
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-90.35	-3.8	-610.0	610.0	604.9	118.821	
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-90.35	-3.8	-610.0	610.0	604.4	109.254	
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-90.35	-3.8	-610.0	610.0	604.0	101.113	
1,500.0	1,500.0	1,501.0	1,501.0	3.2	3.2	-90.35	-3.8	-610.0	610.0	603.5	94.101	
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	-90.35	-3.8	-610.0	610.0	603.1	87.998	
1,700.0	1,700.0	1,701.0	1,701.0	3.7	3.7	-90.35	-3.8	-610.0	610.0	602.6	82.639	
1,800.0	1,800.0	1,801.0	1,801.0	3.9	3.9	-90.35	-3.8	-610.0	610.0	602.2	77.895	
1,900.0	1,900.0	1,901.0	1,901.0	4.1	4.1	-90.35	-3.8	-610.0	610.0	601.7	73.666	
2,000.0	2,000.0	2,001.0	2,001.0	4.4	4.4	-90.35	-3.8	-610.0	610.0	601.3	69.873	
2,100.0	2,100.0	2,101.0	2,101.0	4.6	4.6	-90.35	-3.8	-610.0	610.0	600.8	66.451	

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

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Monet Federal #9H
Project:	Lea County, NM	TVD Reference:	well @ 3480.0usft (McVay #7)
Reference Site:	Sec 4, T25S, R33E	MD Reference:	well @ 3480.0usft (McVay #7)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Sec 4, T25S, R33E - Monet Federal #10H - Pilot Hole - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
2,200.0	2,200.0	2,201.0	2,201.0	4.8	4.8	-90.35	-3.8	-610.0	610.0	600.4	63.349		
2,300.0	2,300.0	2,301.0	2,301.0	5.0	5.0	-90.35	-3.8	-610.0	610.0	599.9	60.523		
2,400.0	2,400.0	2,401.0	2,401.0	5.3	5.3	-90.35	-3.8	-610.0	610.0	599.5	57.939		
2,500.0	2,500.0	2,501.0	2,501.0	5.5	5.5	-90.35	-3.8	-610.0	610.0	599.0	55.567		
2,600.0	2,600.0	2,601.0	2,601.0	5.7	5.7	-90.35	-3.8	-610.0	610.0	598.6	53.381		
2,700.0	2,700.0	2,701.0	2,701.0	5.9	5.9	-90.35	-3.8	-610.0	610.0	598.1	51.360		
2,800.0	2,800.0	2,801.0	2,801.0	6.2	6.2	-90.35	-3.8	-610.0	610.0	597.7	49.487		
2,900.0	2,900.0	2,901.0	2,901.0	6.4	6.4	-90.35	-3.8	-610.0	610.0	597.2	47.746		
3,000.0	3,000.0	3,001.0	3,001.0	6.6	6.6	-90.35	-3.8	-610.0	610.0	596.8	46.123		
3,100.0	3,100.0	3,101.0	3,101.0	6.8	6.8	-90.35	-3.8	-610.0	610.0	596.3	44.607		
3,200.0	3,200.0	3,201.0	3,201.0	7.1	7.1	-90.35	-3.8	-610.0	610.0	595.9	43.187		
3,300.0	3,300.0	3,301.0	3,301.0	7.3	7.3	-90.35	-3.8	-610.0	610.0	595.4	41.855		
3,400.0	3,400.0	3,401.0	3,401.0	7.5	7.5	-90.35	-3.8	-610.0	610.0	595.0	40.602		
3,500.0	3,500.0	3,501.0	3,501.0	7.7	7.7	-90.35	-3.8	-610.0	610.0	594.5	39.423		
3,600.0	3,600.0	3,601.0	3,601.0	8.0	8.0	-90.35	-3.8	-610.0	610.0	594.1	38.310		
3,700.0	3,700.0	3,701.0	3,701.0	8.2	8.2	-90.35	-3.8	-610.0	610.0	593.6	37.258		
3,800.0	3,800.0	3,801.0	3,801.0	8.4	8.4	-90.35	-3.8	-610.0	610.0	593.2	36.262		
3,900.0	3,900.0	3,901.0	3,901.0	8.6	8.6	-90.35	-3.8	-610.0	610.0	592.7	35.318		
4,000.0	4,000.0	4,001.0	4,001.0	8.9	8.9	-90.35	-3.8	-610.0	610.0	592.3	34.422		
4,100.0	4,100.0	4,101.0	4,101.0	9.1	9.1	-90.35	-3.8	-610.0	610.0	591.8	33.571		
4,200.0	4,200.0	4,201.0	4,201.0	9.3	9.3	-90.35	-3.8	-610.0	610.0	591.4	32.760		
4,300.0	4,300.0	4,301.0	4,301.0	9.5	9.5	-90.35	-3.8	-610.0	610.0	590.9	31.988		
4,400.0	4,400.0	4,401.0	4,401.0	9.8	9.8	-90.35	-3.8	-610.0	610.0	590.5	31.251		
4,500.0	4,500.0	4,501.0	4,501.0	10.0	10.0	-90.35	-3.8	-610.0	610.0	590.0	30.548		
4,600.0	4,600.0	4,601.0	4,601.0	10.2	10.2	-90.35	-3.8	-610.0	610.0	589.6	29.875		
4,700.0	4,700.0	4,701.0	4,701.0	10.4	10.4	-90.35	-3.8	-610.0	610.0	589.1	29.232		
4,800.0	4,800.0	4,801.0	4,801.0	10.7	10.7	-90.35	-3.8	-610.0	610.0	588.7	28.615		
4,900.0	4,900.0	4,901.0	4,901.0	10.9	10.9	-90.35	-3.8	-610.0	610.0	588.2	28.024		
5,000.0	5,000.0	5,001.0	5,001.0	11.1	11.1	-90.35	-3.8	-610.0	610.0	587.8	27.457		
5,100.0	5,100.0	5,101.0	5,101.0	11.3	11.3	-90.35	-3.8	-610.0	610.0	587.3	26.913		
5,200.0	5,200.0	5,201.0	5,201.0	11.6	11.6	-90.35	-3.8	-610.0	610.0	586.9	26.389		
5,300.0	5,300.0	5,301.0	5,301.0	11.8	11.8	-90.35	-3.8	-610.0	610.0	586.4	25.886		
5,400.0	5,400.0	5,401.0	5,401.0	12.0	12.0	-90.35	-3.8	-610.0	610.0	586.0	25.401		
5,500.0	5,500.0	5,501.0	5,501.0	12.2	12.2	-90.35	-3.8	-610.0	610.0	585.5	24.934		
5,600.0	5,600.0	5,601.0	5,601.0	12.5	12.5	-90.35	-3.8	-610.0	610.0	585.1	24.485		
5,700.0	5,700.0	5,701.0	5,701.0	12.7	12.7	-90.35	-3.8	-610.0	610.0	584.6	24.051		
5,800.0	5,800.0	5,801.0	5,801.0	12.9	12.9	-90.35	-3.8	-610.0	610.0	584.2	23.632		
5,900.0	5,900.0	5,901.0	5,901.0	13.1	13.1	-90.35	-3.8	-610.0	610.0	583.7	23.227		
6,000.0	6,000.0	6,001.0	6,001.0	13.4	13.4	-90.35	-3.8	-610.0	610.0	583.3	22.836		
6,100.0	6,100.0	6,101.0	6,101.0	13.6	13.6	-90.35	-3.8	-610.0	610.0	582.8	22.458		
6,200.0	6,200.0	6,201.0	6,201.0	13.8	13.8	-90.35	-3.8	-610.0	610.0	582.4	22.093		
6,300.0	6,300.0	6,301.0	6,301.0	14.0	14.0	-90.35	-3.8	-610.0	610.0	581.9	21.739		
6,400.0	6,400.0	6,401.0	6,401.0	14.3	14.3	-90.35	-3.8	-610.0	610.0	581.5	21.396		
6,500.0	6,500.0	6,501.0	6,501.0	14.5	14.5	-90.35	-3.8	-610.0	610.0	581.0	21.064		
6,600.0	6,600.0	6,601.0	6,601.0	14.7	14.7	-90.35	-3.8	-610.0	610.0	580.6	20.742		
6,700.0	6,700.0	6,701.0	6,701.0	14.9	14.9	-90.35	-3.8	-610.0	610.0	580.1	20.430		
6,800.0	6,800.0	6,801.0	6,801.0	15.2	15.2	-90.35	-3.8	-610.0	610.0	579.7	20.127		
6,900.0	6,900.0	6,901.0	6,901.0	15.4	15.4	-90.35	-3.8	-610.0	610.0	579.2	19.832		
7,000.0	7,000.0	7,001.0	7,001.0	15.6	15.6	-90.35	-3.8	-610.0	610.0	578.8	19.547		
7,100.0	7,100.0	7,101.0	7,101.0	15.8	15.8	-90.35	-3.8	-610.0	610.0	578.3	19.269		
7,200.0	7,200.0	7,201.0	7,201.0	16.1	16.1	-90.35	-3.8	-610.0	610.0	577.9	18.999		
7,300.0	7,300.0	7,301.0	7,301.0	16.3	16.3	-90.35	-3.8	-610.0	610.0	577.4	18.737		

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

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Offset Design Sec 4, T25S, R33E - Monet Federal #10H - Pilot Hole - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
7,400.0	7,400.0	7,401.0	7,401.0	16.5	16.5	-90.35	-3.8	-610.0	610.0	577.0	18.482		
7,500.0	7,500.0	7,501.0	7,501.0	16.7	16.7	-90.35	-3.8	-610.0	610.0	576.5	18.233		
7,600.0	7,600.0	7,601.0	7,601.0	17.0	17.0	-90.35	-3.8	-610.0	610.0	576.1	17.992		
7,700.0	7,700.0	7,701.0	7,701.0	17.2	17.2	-90.35	-3.8	-610.0	610.0	575.6	17.756		
7,800.0	7,800.0	7,801.0	7,801.0	17.4	17.4	-90.35	-3.8	-610.0	610.0	575.2	17.527		
7,900.0	7,900.0	7,901.0	7,901.0	17.6	17.6	-90.35	-3.8	-610.0	610.0	574.7	17.303		
8,000.0	8,000.0	8,001.0	8,001.0	17.8	17.9	-90.35	-3.8	-610.0	610.0	574.3	17.086		
8,100.0	8,100.0	8,101.0	8,101.0	18.1	18.1	-90.35	-3.8	-610.0	610.0	573.8	16.873		
8,200.0	8,200.0	8,201.0	8,201.0	18.3	18.3	-90.35	-3.8	-610.0	610.0	573.4	16.666		
8,300.0	8,300.0	8,301.0	8,301.0	18.5	18.5	-90.35	-3.8	-610.0	610.0	572.9	16.464		
8,400.0	8,400.0	8,401.0	8,401.0	18.7	18.8	-90.35	-3.8	-610.0	610.0	572.5	16.266		
8,500.0	8,500.0	8,501.0	8,501.0	19.0	19.0	-90.35	-3.8	-610.0	610.0	572.0	16.074		
8,600.0	8,600.0	8,601.0	8,601.0	19.2	19.2	-90.35	-3.8	-610.0	610.0	571.6	15.885		
8,700.0	8,700.0	8,701.0	8,701.0	19.4	19.4	-90.35	-3.8	-610.0	610.0	571.1	15.702		
8,777.6	8,777.6	8,778.6	8,778.6	19.6	19.6	-90.35	-3.8	-610.0	610.0	570.8	15.562		
8,800.0	8,800.0	8,801.0	8,801.0	19.6	19.7	89.79	-3.8	-610.0	610.0	570.7	15.525		
8,825.0	8,824.9	8,825.9	8,825.9	19.7	19.7	89.96	-3.8	-610.0	610.0	570.6	15.487		
8,828.6	8,828.5	8,829.5	8,829.5	19.7	19.7	90.00	-3.8	-610.0	610.0	570.6	15.481 CC		
8,850.0	8,849.7	8,850.7	8,850.7	19.7	19.8	90.26	-3.8	-610.0	610.0	570.5	15.449		
8,875.0	8,874.3	8,875.3	8,875.3	19.8	19.8	90.66	-3.8	-610.0	610.0	570.4	15.413		
8,900.0	8,898.7	8,899.7	8,899.7	19.8	19.9	91.17	-3.8	-610.0	610.1	570.4	15.379 ES		
8,925.0	8,922.7	8,923.7	8,923.7	19.8	19.9	91.78	-3.8	-610.0	610.3	570.5	15.348		
8,950.0	8,946.3	8,947.3	8,947.3	19.9	20.0	92.46	-3.8	-610.0	610.6	570.8	15.321		
8,975.0	8,969.4	8,970.4	8,970.4	19.9	20.0	93.22	-3.8	-610.0	611.1	571.2	15.301		
9,000.0	8,992.0	8,993.0	8,993.0	20.0	20.1	94.03	-3.8	-610.0	611.9	571.9	15.288		
9,025.0	9,014.1	9,015.1	9,015.1	20.0	20.1	94.88	-3.8	-610.0	612.9	572.8	15.284 SF		
9,050.0	9,035.5	9,036.5	9,036.5	20.0	20.2	95.74	-3.8	-610.0	614.3	574.1	15.292		
9,075.0	9,056.1	9,057.1	9,057.1	20.1	20.2	96.60	-3.8	-610.0	616.1	575.9	15.313		
9,100.0	9,076.1	9,077.1	9,077.1	20.1	20.3	97.44	-3.8	-610.0	618.5	578.2	15.349		
9,125.0	9,095.1	9,096.1	9,096.1	20.2	20.3	98.23	-3.8	-610.0	621.3	581.0	15.402		
9,150.0	9,113.4	9,114.4	9,114.4	20.3	20.4	98.96	-3.8	-610.0	624.8	584.4	15.471		
9,175.0	9,130.7	9,131.7	9,131.7	20.3	20.4	99.60	-3.8	-610.0	629.0	588.5	15.558		
9,200.0	9,147.0	9,148.0	9,148.0	20.4	20.4	100.14	-3.8	-610.0	633.8	593.4	15.662		
9,225.0	9,162.3	9,163.3	9,163.3	20.5	20.5	100.56	-3.8	-610.0	639.5	599.0	15.782		
9,250.0	9,176.6	9,177.6	9,177.6	20.5	20.5	100.83	-3.8	-610.0	645.9	605.4	15.917		
9,275.0	9,189.8	9,190.8	9,190.8	20.6	20.5	100.95	-3.8	-610.0	653.2	612.6	16.064		
9,300.0	9,201.8	9,202.8	9,202.8	20.7	20.6	100.89	-3.8	-610.0	661.4	620.6	16.221		
9,325.0	9,212.7	9,213.7	9,213.7	20.8	20.6	100.63	-3.8	-610.0	670.4	629.5	16.386		
9,350.0	9,222.4	9,223.4	9,223.4	20.9	20.6	100.17	-3.8	-610.0	680.3	639.2	16.557		
9,375.0	9,230.9	9,231.9	9,231.9	21.1	20.6	99.50	-3.8	-610.0	691.0	649.7	16.732		
9,400.0	9,238.1	9,239.1	9,239.1	21.2	20.6	98.58	-3.8	-610.0	702.6	661.0	16.913		
9,425.0	9,244.1	9,245.1	9,245.1	21.3	20.6	97.43	-3.8	-610.0	714.9	673.1	17.099		
9,450.0	9,248.8	9,249.8	9,249.8	21.5	20.7	96.02	-3.8	-610.0	728.1	686.0	17.294		
9,475.0	9,252.2	9,253.2	9,253.2	21.6	20.7	94.35	-3.8	-610.0	741.9	699.5	17.503		
9,500.0	9,254.3	9,255.3	9,255.3	21.8	20.7	92.43	-3.8	-610.0	756.3	713.7	17.732		
9,522.6	9,255.0	9,256.0	9,256.0	21.9	20.7	90.46	-3.8	-610.0	769.9	727.0	17.963		
9,600.0	9,255.9	9,256.9	9,256.9	22.5	20.7	90.54	-3.8	-610.0	819.4	775.9	18.850		
9,700.0	9,256.9	9,257.9	9,257.9	23.3	20.7	90.64	-3.8	-610.0	889.3	844.9	20.044		
9,800.0	9,257.9	9,258.9	9,258.9	24.3	20.7	90.74	-3.8	-610.0	964.5	919.1	21.258		
9,900.0	9,259.0	9,260.0	9,260.0	25.3	20.7	90.83	-3.8	-610.0	1,043.9	997.4	22.461		
10,000.0	9,260.0	9,261.0	9,261.0	26.4	20.7	90.93	-3.8	-610.0	1,126.5	1,078.9	23.636		
10,100.0	9,261.1	9,262.1	9,262.1	27.6	20.7	91.03	-3.8	-610.0	1,211.8	1,162.9	24.770		

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

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Monet Federal #9H
Project:	Lea County, NM	TVD Reference:	well @ 3480.0usft (McVay #7)
Reference Site:	Sec 4, T25S, R33E	MD Reference:	well @ 3480.0usft (McVay #7)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Sec 4, T25S, R33E - Monet Federal #10H - Pilot Hole - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning	
10,200.0	9,262.1	9,263.1	9,263.1	28.9	20.7	91.13	-3.8	-610.0	1,299.2	1,248.9	25.854		
10,300.0	9,263.2	9,264.2	9,264.2	30.2	20.7	91.23	-3.8	-610.0	1,388.3	1,336.6	26.886		
10,400.0	9,264.2	9,265.2	9,265.2	31.5	20.7	91.33	-3.8	-610.0	1,478.8	1,425.7	27.864		
10,500.0	9,265.3	9,266.3	9,266.3	33.0	20.7	91.42	-3.8	-610.0	1,570.4	1,515.8	28.788		
10,600.0	9,266.3	9,267.3	9,267.3	34.4	20.7	91.52	-3.8	-610.0	1,663.0	1,606.9	29.661		
10,700.0	9,267.4	9,268.4	9,268.4	35.9	20.7	91.62	-3.8	-610.0	1,756.4	1,698.8	30.484		
10,800.0	9,268.4	9,269.4	9,269.4	37.4	20.7	91.72	-3.8	-610.0	1,850.5	1,791.3	31.259		
10,900.0	9,269.5	9,270.5	9,270.5	38.9	20.7	91.82	-3.8	-610.0	1,945.2	1,884.4	31.991		
11,000.0	9,270.5	9,271.5	9,271.5	40.5	20.7	91.92	-3.8	-610.0	2,040.4	1,977.9	32.680		
11,100.0	9,271.6	9,272.6	9,272.6	42.1	20.7	92.02	-3.8	-610.0	2,136.0	2,071.9	33.331		
11,200.0	9,272.6	9,273.6	9,273.6	43.7	20.7	92.11	-3.8	-610.0	2,232.0	2,166.3	33.946		
11,300.0	9,273.7	9,274.7	9,274.7	45.3	20.7	92.21	-3.8	-610.0	2,328.4	2,260.9	34.526		
11,400.0	9,274.7	9,275.7	9,275.7	46.9	20.7	92.31	-3.8	-610.0	2,425.0	2,355.9	35.076		
11,500.0	9,275.8	9,276.8	9,276.8	48.6	20.7	92.41	-3.8	-610.0	2,521.9	2,451.1	35.596		
11,600.0	9,276.8	9,277.8	9,277.8	50.2	20.7	92.51	-3.8	-610.0	2,619.0	2,546.5	36.089		
11,700.0	9,277.9	9,278.9	9,278.9	51.9	20.7	92.61	-3.8	-610.0	2,716.4	2,642.1	36.557		
11,800.0	9,278.9	9,279.9	9,279.9	53.6	20.7	92.70	-3.8	-610.0	2,813.9	2,737.9	37.001		
11,900.0	9,280.0	9,281.0	9,281.0	55.3	20.7	92.80	-3.8	-610.0	2,911.6	2,833.8	37.424		
12,000.0	9,281.0	9,282.0	9,282.0	57.0	20.7	92.90	-3.8	-610.0	3,009.5	2,929.9	37.826		
12,100.0	9,282.1	9,283.1	9,283.1	58.7	20.7	93.00	-3.8	-610.0	3,107.5	3,026.1	38.209		
12,200.0	9,283.1	9,284.1	9,284.1	60.4	20.7	93.10	-3.8	-610.0	3,205.6	3,122.5	38.574		
12,300.0	9,284.2	9,285.2	9,285.2	62.1	20.7	93.19	-3.8	-610.0	3,303.8	3,218.9	38.923		
12,400.0	9,285.2	9,286.2	9,286.2	63.8	20.7	93.29	-3.8	-610.0	3,402.1	3,315.4	39.256		
12,500.0	9,286.3	9,287.3	9,287.3	65.6	20.7	93.39	-3.8	-610.0	3,500.5	3,412.1	39.575		
12,600.0	9,287.3	9,288.3	9,288.3	67.3	20.7	93.49	-3.8	-610.0	3,599.0	3,508.8	39.880		
12,700.0	9,288.4	9,289.4	9,289.4	69.0	20.7	93.59	-3.8	-610.0	3,697.6	3,605.6	40.173		
12,800.0	9,289.4	9,290.4	9,290.4	70.8	20.8	93.69	-3.8	-610.0	3,796.3	3,702.4	40.453		
12,900.0	9,290.4	9,291.4	9,291.4	72.5	20.8	93.78	-3.8	-610.0	3,895.0	3,799.4	40.722		
13,000.0	9,291.5	9,292.5	9,292.5	74.3	20.8	93.88	-3.8	-610.0	3,993.8	3,896.3	40.981		
13,100.0	9,292.5	9,293.5	9,293.5	76.0	20.8	93.98	-3.8	-610.0	4,092.7	3,993.4	41.229		
13,200.0	9,293.6	9,294.6	9,294.6	77.8	20.8	94.08	-3.8	-610.0	4,191.6	4,090.5	41.469		
13,300.0	9,294.6	9,295.6	9,295.6	79.5	20.8	94.18	-3.8	-610.0	4,290.5	4,187.6	41.699		
13,400.0	9,295.7	9,296.7	9,296.7	81.3	20.8	94.27	-3.8	-610.0	4,389.5	4,284.8	41.921		
13,500.0	9,296.7	9,297.7	9,297.7	83.1	20.8	94.37	-3.8	-610.0	4,488.6	4,382.0	42.135		
13,600.0	9,297.8	9,298.8	9,298.8	84.8	20.8	94.47	-3.8	-610.0	4,587.6	4,479.3	42.341		
13,700.0	9,298.8	9,299.8	9,299.8	86.6	20.8	94.57	-3.8	-610.0	4,686.8	4,576.6	42.541		
13,800.0	9,299.9	9,300.9	9,300.9	88.4	20.8	94.66	-3.8	-610.0	4,785.9	4,673.9	42.734		
13,810.8	9,300.0	9,301.0	9,301.0	88.6	20.8	94.68	-3.8	-610.0	4,796.7	4,684.5	42.754		

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Monet Federal #9H
Project:	Lea County, NM	TVD Reference:	well @ 3480.0usft (McVay #7)
Reference Site:	Sec 4, T25S, R33E	MD Reference:	well @ 3480.0usft (McVay #7)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Sec 4, T25S, R33E - Monet Federal #10H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning	
0.0	0.0	1.0	1.0	0.0	0.0	-90.35	-3.8	-610.0	610.0				
100.0	100.0	101.0	101.0	0.1	0.1	-90.35	-3.8	-610.0	610.0	609.8	3,230.794		
200.0	200.0	201.0	201.0	0.3	0.3	-90.35	-3.8	-610.0	610.0	609.3	955.588		
300.0	300.0	301.0	301.0	0.5	0.5	-90.35	-3.8	-610.0	610.0	608.9	560.717		
400.0	400.0	401.0	401.0	0.8	0.8	-90.35	-3.8	-610.0	610.0	608.4	395.765		
500.0	500.0	501.0	501.0	1.0	1.0	-90.35	-3.8	-610.0	610.0	608.0	306.999		
600.0	600.0	601.0	601.0	1.2	1.2	-90.35	-3.8	-610.0	610.0	607.5	250.357		
700.0	700.0	701.0	701.0	1.4	1.4	-90.35	-3.8	-610.0	610.0	607.1	211.361		
800.0	800.0	801.0	801.0	1.7	1.7	-90.35	-3.8	-610.0	610.0	606.7	182.875		
900.0	900.0	901.0	901.0	1.9	1.9	-90.35	-3.8	-610.0	610.0	606.2	161.156		
1,000.0	1,000.0	1,001.0	1,001.0	2.1	2.1	-90.35	-3.8	-610.0	610.0	605.8	144.048		
1,100.0	1,100.0	1,101.0	1,101.0	2.3	2.3	-90.35	-3.8	-610.0	610.0	605.3	130.224		
1,200.0	1,200.0	1,201.0	1,201.0	2.6	2.6	-90.35	-3.8	-610.0	610.0	604.9	118.821		
1,300.0	1,300.0	1,301.0	1,301.0	2.8	2.8	-90.35	-3.8	-610.0	610.0	604.4	109.254		
1,400.0	1,400.0	1,401.0	1,401.0	3.0	3.0	-90.35	-3.8	-610.0	610.0	604.0	101.113		
1,500.0	1,500.0	1,501.0	1,501.0	3.2	3.2	-90.35	-3.8	-610.0	610.0	603.5	94.101		
1,600.0	1,600.0	1,601.0	1,601.0	3.5	3.5	-90.35	-3.8	-610.0	610.0	603.1	87.998		
1,700.0	1,700.0	1,701.0	1,701.0	3.7	3.7	-90.35	-3.8	-610.0	610.0	602.6	82.639		
1,800.0	1,800.0	1,801.0	1,801.0	3.9	3.9	-90.35	-3.8	-610.0	610.0	602.2	77.895		
1,900.0	1,900.0	1,901.0	1,901.0	4.1	4.1	-90.35	-3.8	-610.0	610.0	601.7	73.666		
2,000.0	2,000.0	2,001.0	2,001.0	4.4	4.4	-90.35	-3.8	-610.0	610.0	601.3	69.873		
2,100.0	2,100.0	2,101.0	2,101.0	4.6	4.6	-90.35	-3.8	-610.0	610.0	600.8	66.451		
2,200.0	2,200.0	2,201.0	2,201.0	4.8	4.8	-90.35	-3.8	-610.0	610.0	600.4	63.349		
2,300.0	2,300.0	2,301.0	2,301.0	5.0	5.0	-90.35	-3.8	-610.0	610.0	599.9	60.523		
2,400.0	2,400.0	2,401.0	2,401.0	5.3	5.3	-90.35	-3.8	-610.0	610.0	599.5	57.939		
2,500.0	2,500.0	2,501.0	2,501.0	5.5	5.5	-90.35	-3.8	-610.0	610.0	599.0	55.567		
2,600.0	2,600.0	2,601.0	2,601.0	5.7	5.7	-90.35	-3.8	-610.0	610.0	598.6	53.381		
2,700.0	2,700.0	2,701.0	2,701.0	5.9	5.9	-90.35	-3.8	-610.0	610.0	598.1	51.360		
2,800.0	2,800.0	2,801.0	2,801.0	6.2	6.2	-90.35	-3.8	-610.0	610.0	597.7	49.487		
2,900.0	2,900.0	2,901.0	2,901.0	6.4	6.4	-90.35	-3.8	-610.0	610.0	597.2	47.746		
3,000.0	3,000.0	3,001.0	3,001.0	6.6	6.6	-90.35	-3.8	-610.0	610.0	596.8	46.123		
3,100.0	3,100.0	3,101.0	3,101.0	6.8	6.8	-90.35	-3.8	-610.0	610.0	596.3	44.607		
3,200.0	3,200.0	3,201.0	3,201.0	7.1	7.1	-90.35	-3.8	-610.0	610.0	595.9	43.187		
3,300.0	3,300.0	3,301.0	3,301.0	7.3	7.3	-90.35	-3.8	-610.0	610.0	595.4	41.855		
3,400.0	3,400.0	3,401.0	3,401.0	7.5	7.5	-90.35	-3.8	-610.0	610.0	595.0	40.602		
3,500.0	3,500.0	3,501.0	3,501.0	7.7	7.7	-90.35	-3.8	-610.0	610.0	594.5	39.423		
3,600.0	3,600.0	3,601.0	3,601.0	8.0	8.0	-90.35	-3.8	-610.0	610.0	594.1	38.310		
3,700.0	3,700.0	3,701.0	3,701.0	8.2	8.2	-90.35	-3.8	-610.0	610.0	593.6	37.258		
3,800.0	3,800.0	3,801.0	3,801.0	8.4	8.4	-90.35	-3.8	-610.0	610.0	593.2	36.262		
3,900.0	3,900.0	3,901.0	3,901.0	8.6	8.6	-90.35	-3.8	-610.0	610.0	592.7	35.318		
4,000.0	4,000.0	4,001.0	4,001.0	8.9	8.9	-90.35	-3.8	-610.0	610.0	592.3	34.422		
4,100.0	4,100.0	4,101.0	4,101.0	9.1	9.1	-90.35	-3.8	-610.0	610.0	591.8	33.571		
4,200.0	4,200.0	4,201.0	4,201.0	9.3	9.3	-90.35	-3.8	-610.0	610.0	591.4	32.760		
4,300.0	4,300.0	4,301.0	4,301.0	9.5	9.5	-90.35	-3.8	-610.0	610.0	590.9	31.988		
4,400.0	4,400.0	4,401.0	4,401.0	9.8	9.8	-90.35	-3.8	-610.0	610.0	590.5	31.251		
4,500.0	4,500.0	4,501.0	4,501.0	10.0	10.0	-90.35	-3.8	-610.0	610.0	590.0	30.548		
4,600.0	4,600.0	4,601.0	4,601.0	10.2	10.2	-90.35	-3.8	-610.0	610.0	589.6	29.875		
4,700.0	4,700.0	4,701.0	4,701.0	10.4	10.4	-90.35	-3.8	-610.0	610.0	589.1	29.232		
4,800.0	4,800.0	4,801.0	4,801.0	10.7	10.7	-90.35	-3.8	-610.0	610.0	588.7	28.615		
4,900.0	4,900.0	4,901.0	4,901.0	10.9	10.9	-90.35	-3.8	-610.0	610.0	588.2	28.024		
5,000.0	5,000.0	5,001.0	5,001.0	11.1	11.1	-90.35	-3.8	-610.0	610.0	587.8	27.457		
5,100.0	5,100.0	5,101.0	5,101.0	11.3	11.3	-90.35	-3.8	-610.0	610.0	587.3	26.913		

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

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Monet Federal #9H
Project:	Lea County, NM	TVD Reference:	well @ 3480.0usft (McVay #7)
Reference Site:	Sec 4, T25S, R33E	MD Reference:	well @ 3480.0usft (McVay #7)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
5,200.0	5,200.0	5,201.0	5,201.0	11.6	11.6	-90.35	-3.8	-610.0	610.0	586.9	26.389		
5,300.0	5,300.0	5,301.0	5,301.0	11.8	11.8	-90.35	-3.8	-610.0	610.0	586.4	25.886		
5,400.0	5,400.0	5,401.0	5,401.0	12.0	12.0	-90.35	-3.8	-610.0	610.0	586.0	25.401		
5,500.0	5,500.0	5,501.0	5,501.0	12.2	12.2	-90.35	-3.8	-610.0	610.0	585.5	24.934		
5,600.0	5,600.0	5,601.0	5,601.0	12.5	12.5	-90.35	-3.8	-610.0	610.0	585.1	24.485		
5,700.0	5,700.0	5,701.0	5,701.0	12.7	12.7	-90.35	-3.8	-610.0	610.0	584.6	24.051		
5,800.0	5,800.0	5,801.0	5,801.0	12.9	12.9	-90.35	-3.8	-610.0	610.0	584.2	23.632		
5,900.0	5,900.0	5,901.0	5,901.0	13.1	13.1	-90.35	-3.8	-610.0	610.0	583.7	23.227		
6,000.0	6,000.0	6,001.0	6,001.0	13.4	13.4	-90.35	-3.8	-610.0	610.0	583.3	22.836		
6,100.0	6,100.0	6,101.0	6,101.0	13.6	13.6	-90.35	-3.8	-610.0	610.0	582.8	22.458		
6,200.0	6,200.0	6,201.0	6,201.0	13.8	13.8	-90.35	-3.8	-610.0	610.0	582.4	22.093		
6,300.0	6,300.0	6,301.0	6,301.0	14.0	14.0	-90.35	-3.8	-610.0	610.0	581.9	21.739		
6,400.0	6,400.0	6,401.0	6,401.0	14.3	14.3	-90.35	-3.8	-610.0	610.0	581.5	21.396		
6,500.0	6,500.0	6,501.0	6,501.0	14.5	14.5	-90.35	-3.8	-610.0	610.0	581.0	21.064		
6,600.0	6,600.0	6,601.0	6,601.0	14.7	14.7	-90.35	-3.8	-610.0	610.0	580.6	20.742		
6,700.0	6,700.0	6,701.0	6,701.0	14.9	14.9	-90.35	-3.8	-610.0	610.0	580.1	20.430		
6,800.0	6,800.0	6,801.0	6,801.0	15.2	15.2	-90.35	-3.8	-610.0	610.0	579.7	20.127		
6,900.0	6,900.0	6,901.0	6,901.0	15.4	15.4	-90.35	-3.8	-610.0	610.0	579.2	19.832		
7,000.0	7,000.0	7,001.0	7,001.0	15.6	15.6	-90.35	-3.8	-610.0	610.0	578.8	19.547		
7,100.0	7,100.0	7,101.0	7,101.0	15.8	15.8	-90.35	-3.8	-610.0	610.0	578.3	19.269		
7,200.0	7,200.0	7,201.0	7,201.0	16.1	16.1	-90.35	-3.8	-610.0	610.0	577.9	18.999		
7,300.0	7,300.0	7,301.0	7,301.0	16.3	16.3	-90.35	-3.8	-610.0	610.0	577.4	18.737		
7,400.0	7,400.0	7,401.0	7,401.0	16.5	16.5	-90.35	-3.8	-610.0	610.0	577.0	18.482		
7,500.0	7,500.0	7,501.0	7,501.0	16.7	16.7	-90.35	-3.8	-610.0	610.0	576.5	18.233		
7,600.0	7,600.0	7,601.0	7,601.0	17.0	17.0	-90.35	-3.8	-610.0	610.0	576.1	17.992		
7,700.0	7,700.0	7,701.0	7,701.0	17.2	17.2	-90.35	-3.8	-610.0	610.0	575.6	17.756		
7,800.0	7,800.0	7,801.0	7,801.0	17.4	17.4	-90.35	-3.8	-610.0	610.0	575.2	17.527		
7,900.0	7,900.0	7,901.0	7,901.0	17.6	17.6	-90.35	-3.8	-610.0	610.0	574.7	17.303		
8,000.0	8,000.0	8,001.0	8,001.0	17.8	17.8	-90.35	-3.8	-610.0	610.0	574.3	17.086		
8,100.0	8,100.0	8,101.0	8,101.0	18.1	18.1	-90.35	-3.8	-610.0	610.0	573.8	16.873		
8,200.0	8,200.0	8,201.0	8,201.0	18.3	18.3	-90.35	-3.8	-610.0	610.0	573.4	16.666		
8,300.0	8,300.0	8,301.0	8,301.0	18.5	18.5	-90.35	-3.8	-610.0	610.0	572.9	16.464		
8,400.0	8,400.0	8,401.0	8,401.0	18.7	18.8	-90.35	-3.8	-610.0	610.0	572.5	16.266		
8,500.0	8,500.0	8,501.0	8,501.0	19.0	19.0	-90.35	-3.8	-610.0	610.0	572.0	16.074		
8,600.0	8,600.0	8,601.0	8,601.0	19.2	19.2	-90.35	-3.8	-610.0	610.0	571.6	15.885		
8,700.0	8,700.0	8,701.0	8,701.0	19.4	19.4	-90.35	-3.8	-610.0	610.0	571.1	15.702		
8,777.6	8,777.6	8,778.6	8,778.6	19.6	19.6	-90.35	-3.8	-610.0	610.0	570.8	15.562		
8,800.0	8,800.0	8,801.0	8,801.0	19.6	19.7	89.79	-3.8	-610.0	610.0	570.7	15.525		
8,825.0	8,824.9	8,825.9	8,825.9	19.7	19.7	89.96	-3.8	-610.0	610.0	570.6	15.488		
8,830.5	8,830.4	8,831.4	8,831.3	19.7	19.7	90.00	-4.0	-610.0	610.0	570.6	15.481 CC		
8,850.0	8,849.7	8,850.9	8,850.8	19.7	19.7	90.15	-4.9	-610.0	610.0	570.5	15.456		
8,875.0	8,874.3	8,875.9	8,875.8	19.8	19.8	90.34	-7.3	-610.0	610.0	570.4	15.425		
8,900.0	8,898.7	8,901.1	8,900.7	19.8	19.8	90.53	-11.0	-610.0	610.0	570.4	15.395		
8,925.0	8,922.7	8,926.3	8,925.4	19.8	19.9	90.72	-16.1	-610.0	610.0	570.3	15.365		
8,950.0	8,946.3	8,951.7	8,950.0	19.9	19.9	90.91	-22.5	-609.9	610.1	570.3	15.335		
8,975.0	8,969.4	8,977.2	8,974.3	19.9	19.9	91.10	-30.2	-609.9	610.1	570.2	15.305		
9,000.0	8,992.0	9,002.8	8,998.2	20.0	20.0	91.28	-39.2	-609.9	610.1	570.2	15.275		
9,025.0	9,014.1	9,028.5	9,021.7	20.0	20.0	91.46	-49.6	-609.9	610.2	570.2	15.245		
9,050.0	9,035.5	9,054.4	9,044.8	20.0	20.1	91.64	-61.3	-609.9	610.2	570.1	15.213		
9,075.0	9,056.1	9,080.3	9,067.2	20.1	20.1	91.81	-74.2	-609.9	610.3	570.1	15.180		
9,100.0	9,076.1	9,106.3	9,089.1	20.1	20.2	91.98	-88.4	-609.8	610.3	570.0	15.145		
9,125.0	9,095.1	9,132.5	9,110.1	20.2	20.2	92.14	-103.9	-609.8	610.4	570.0	15.108		

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

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Monet Federal #9H
Project:	Lea County, NM	TVD Reference:	well @ 3480.0usft (McVay #7)
Reference Site:	Sec 4, T25S, R33E	MD Reference:	well @ 3480.0usft (McVay #7)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Sec 4, T25S, R33E - Monet Federal #10H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
9,150.0	9,113.4	9,158.7	9,130.4	20.3	20.3	92.30	-120.5	-609.8	610.5	570.0	15.068		
9,175.0	9,130.7	9,185.1	9,149.9	20.3	20.3	92.45	-138.3	-609.7	610.5	569.9	15.025		
9,200.0	9,147.0	9,211.5	9,168.3	20.4	20.4	92.59	-157.2	-609.7	610.6	569.8	14.978		
9,225.0	9,162.3	9,238.1	9,185.8	20.5	20.5	92.73	-177.2	-609.7	610.7	569.8	14.927		
9,250.0	9,176.6	9,264.7	9,202.1	20.5	20.5	92.86	-198.2	-609.6	610.7	569.7	14.872		
9,275.0	9,189.8	9,291.4	9,217.4	20.6	20.6	92.98	-220.2	-609.6	610.8	569.6	14.812		
9,300.0	9,201.8	9,318.2	9,231.4	20.7	20.7	93.09	-243.0	-609.6	610.9	569.4	14.747		
9,325.0	9,212.7	9,340.5	9,244.1	20.8	20.8	93.19	-266.6	-609.5	610.9	569.3	14.676		
9,350.0	9,222.4	9,372.0	9,255.5	20.9	21.0	93.28	-291.0	-609.5	611.0	569.1	14.601		
9,375.0	9,230.9	9,398.9	9,265.6	21.1	21.1	93.37	-316.0	-609.4	611.0	569.0	14.520		
9,400.0	9,238.1	9,426.0	9,274.2	21.2	21.2	93.44	-341.7	-609.4	611.1	568.7	14.434		
9,425.0	9,244.1	9,453.1	9,281.4	21.3	21.3	93.51	-367.8	-609.4	611.1	568.5	14.342		
9,450.0	9,248.8	9,480.2	9,287.1	21.5	21.5	93.56	-394.3	-609.3	611.2	568.3	14.246		
9,475.0	9,252.2	9,507.4	9,291.3	21.6	21.7	93.60	-421.2	-609.3	611.2	568.0	14.145		
9,500.0	9,254.3	9,534.6	9,293.9	21.8	21.8	93.63	-448.2	-609.2	611.2	567.7	14.040		
9,522.6	9,255.0	9,559.2	9,295.0	21.9	22.0	93.65	-472.8	-609.2	611.2	567.4	13.942		
9,600.0	9,255.9	9,636.9	9,295.8	22.5	22.6	93.66	-550.5	-609.1	611.2	566.3	13.594		
9,700.0	9,256.9	9,736.9	9,296.9	23.3	23.4	93.66	-650.5	-608.9	611.2	564.6	13.114		
9,800.0	9,257.9	9,836.9	9,297.9	24.3	24.3	93.66	-750.5	-608.7	611.2	562.8	12.611		
9,900.0	9,259.0	9,936.9	9,299.0	25.3	25.3	93.66	-850.5	-608.6	611.2	560.7	12.098		
10,000.0	9,260.0	10,036.9	9,300.0	26.4	26.4	93.66	-950.5	-608.4	611.2	558.5	11.588		
10,100.0	9,261.1	10,136.9	9,301.1	27.6	27.6	93.66	-1,050.4	-608.2	611.2	556.1	11.088		
10,200.0	9,262.1	10,236.9	9,302.1	28.9	28.9	93.66	-1,150.4	-608.0	611.2	553.6	10.606		
10,300.0	9,263.2	10,336.9	9,303.2	30.2	30.2	93.66	-1,250.4	-607.9	611.2	551.0	10.144		
10,400.0	9,264.2	10,436.9	9,304.2	31.5	31.6	93.66	-1,350.4	-607.7	611.2	548.2	9.705		
10,500.0	9,265.3	10,536.9	9,305.3	33.0	33.0	93.66	-1,450.4	-607.5	611.2	545.4	9.290		
10,600.0	9,266.3	10,636.9	9,306.3	34.4	34.4	93.66	-1,550.4	-607.4	611.2	542.5	8.899		
10,700.0	9,267.4	10,736.9	9,307.4	35.9	35.9	93.66	-1,650.4	-607.2	611.2	539.6	8.532		
10,800.0	9,268.4	10,836.9	9,308.4	37.4	37.4	93.66	-1,750.4	-607.0	611.2	536.6	8.187		
10,900.0	9,269.5	10,936.9	9,309.5	38.9	38.9	93.66	-1,850.4	-606.9	611.2	533.5	7.864		
11,000.0	9,270.5	11,036.9	9,310.5	40.5	40.5	93.66	-1,950.4	-606.7	611.2	530.4	7.560		
11,100.0	9,271.6	11,136.9	9,311.6	42.1	42.1	93.66	-2,050.4	-606.5	611.2	527.2	7.276		
11,200.0	9,272.6	11,236.9	9,312.6	43.7	43.7	93.66	-2,150.4	-606.4	611.2	524.0	7.009		
11,300.0	9,273.7	11,336.9	9,313.7	45.3	45.3	93.66	-2,250.4	-606.2	611.2	520.8	6.759		
11,400.0	9,274.7	11,436.9	9,314.7	46.9	46.9	93.66	-2,350.4	-606.0	611.2	517.5	6.524		
11,500.0	9,275.8	11,536.9	9,315.7	48.6	48.6	93.66	-2,450.4	-605.9	611.2	514.3	6.302		
11,600.0	9,276.8	11,636.9	9,316.8	50.2	50.2	93.66	-2,550.4	-605.7	611.2	510.9	6.094		
11,700.0	9,277.9	11,736.9	9,317.8	51.9	51.9	93.66	-2,650.4	-605.5	611.2	507.6	5.898		
11,800.0	9,278.9	11,836.9	9,318.9	53.6	53.6	93.66	-2,750.4	-605.4	611.2	504.3	5.713		
11,900.0	9,280.0	11,936.9	9,319.9	55.3	55.3	93.66	-2,850.3	-605.2	611.2	500.9	5.539		
12,000.0	9,281.0	12,036.9	9,321.0	57.0	57.0	93.66	-2,950.3	-605.0	611.2	497.5	5.374		
12,100.0	9,282.1	12,136.9	9,322.0	58.7	58.7	93.66	-3,050.3	-604.9	611.2	494.1	5.218		
12,200.0	9,283.1	12,236.9	9,323.1	60.4	60.4	93.66	-3,150.3	-604.7	611.2	490.7	5.070		
12,300.0	9,284.2	12,336.9	9,324.1	62.1	62.1	93.66	-3,250.3	-604.5	611.2	487.3	4.930		
12,400.0	9,285.2	12,436.9	9,325.2	63.8	63.8	93.66	-3,350.3	-604.3	611.2	483.8	4.797		
12,500.0	9,286.3	12,536.9	9,326.2	65.6	65.5	93.66	-3,450.3	-604.2	611.2	480.4	4.670		
12,600.0	9,287.3	12,636.9	9,327.3	67.3	67.3	93.66	-3,550.3	-604.0	611.2	476.9	4.550		
12,700.0	9,288.4	12,736.9	9,328.3	69.0	69.0	93.66	-3,650.3	-603.8	611.2	473.4	4.435		
12,800.0	9,289.4	12,836.9	9,329.4	70.8	70.7	93.66	-3,750.3	-603.7	611.2	470.0	4.326		
12,900.0	9,290.4	12,936.9	9,330.4	72.5	72.5	93.66	-3,850.3	-603.5	611.2	466.5	4.222		
13,000.0	9,291.5	13,036.9	9,331.5	74.3	74.2	93.66	-3,950.3	-603.3	611.2	463.0	4.123		
13,100.0	9,292.5	13,136.9	9,332.5	76.0	76.0	93.66	-4,050.3	-603.2	611.2	459.5	4.028		

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

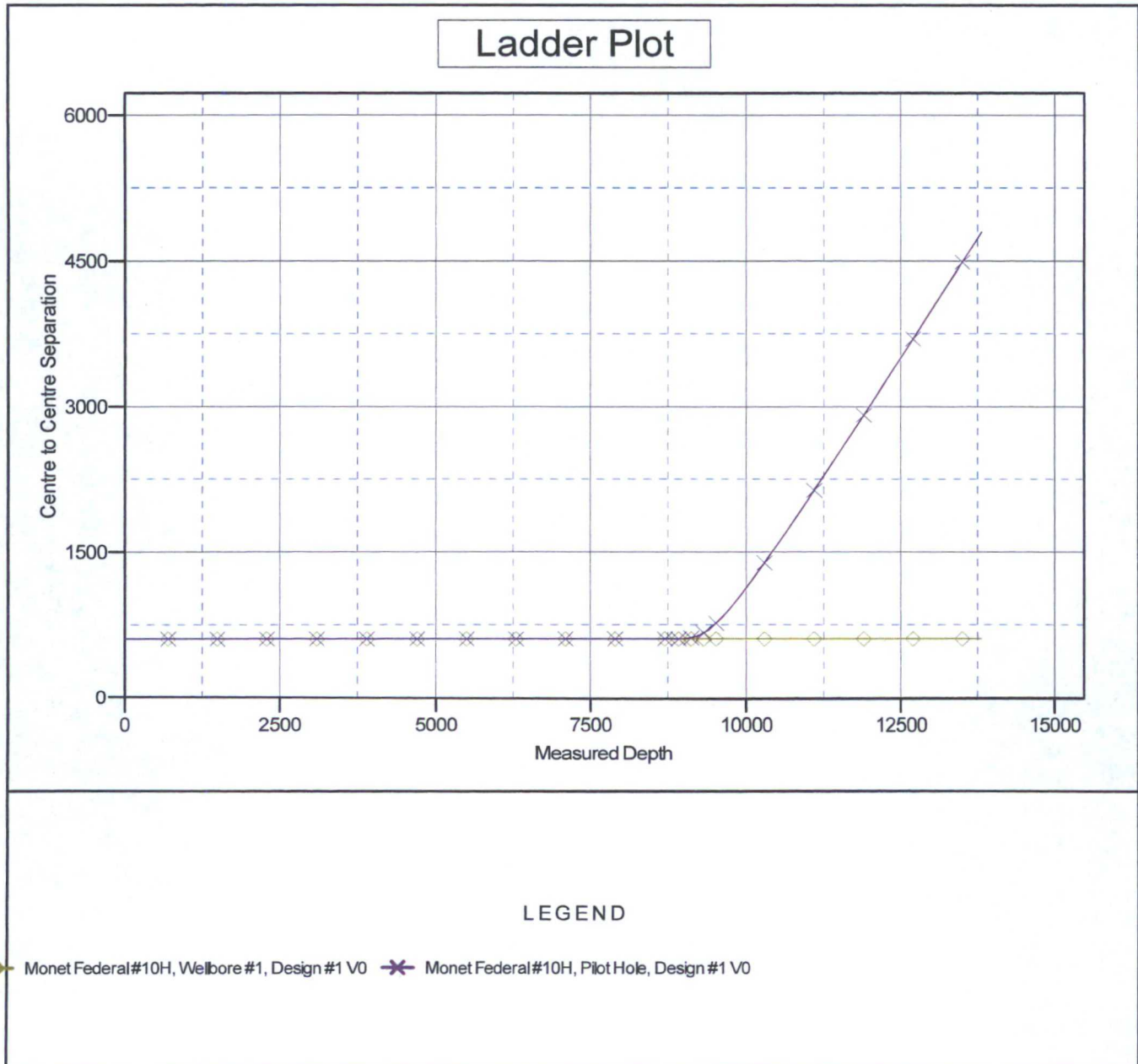
Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Monet Federal #9H
Project:	Lea County, NM	TVD Reference:	well @ 3480.0usft (McVay #7)
Reference Site:	Sec 4, T25S, R33E	MD Reference:	well @ 3480.0usft (McVay #7)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Offset Design Sec 4, T25S, R33E - Monet Federal #10H - Wellbore #1 - Design #1												Offset Site Error:	0.0 usft
Survey Program: 0-MWD default												Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Separation Factor	Warning	
13,200.0	9,293.6	13,236.9	9,333.6	77.8	77.8	93.66	-4,150.3	-603.0	611.2	456.0	3.937		
13,300.0	9,294.6	13,336.9	9,334.6	79.5	79.5	93.66	-4,250.3	-602.8	611.2	452.5	3.850		
13,400.0	9,295.7	13,436.9	9,335.7	81.3	81.3	93.66	-4,350.3	-602.7	611.2	448.9	3.766		
13,500.0	9,296.7	13,536.9	9,336.7	83.1	83.0	93.66	-4,450.3	-602.5	611.2	445.4	3.686		
13,600.0	9,297.8	13,636.9	9,337.8	84.8	84.8	93.66	-4,550.3	-602.3	611.2	441.9	3.609		
13,700.0	9,298.8	13,736.9	9,338.8	86.6	86.6	93.66	-4,650.2	-602.2	611.2	438.4	3.536		
13,800.0	9,299.9	13,836.9	9,339.9	88.4	88.3	93.66	-4,750.2	-602.0	611.2	434.8	3.465		
13,810.8	9,300.0	13,847.7	9,340.0	88.6	88.5	93.66	-4,761.1	-602.0	611.2	434.4	3.457	ES, SF	

Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Monet Federal #9H
Project:	Lea County, NM	TVD Reference:	well @ 3480.0usft (McVay #7)
Reference Site:	Sec 4, T25S, R33E	MD Reference:	well @ 3480.0usft (McVay #7)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to well @ 3480.0usft (McVay #7)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Monet Federal #9H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.40°

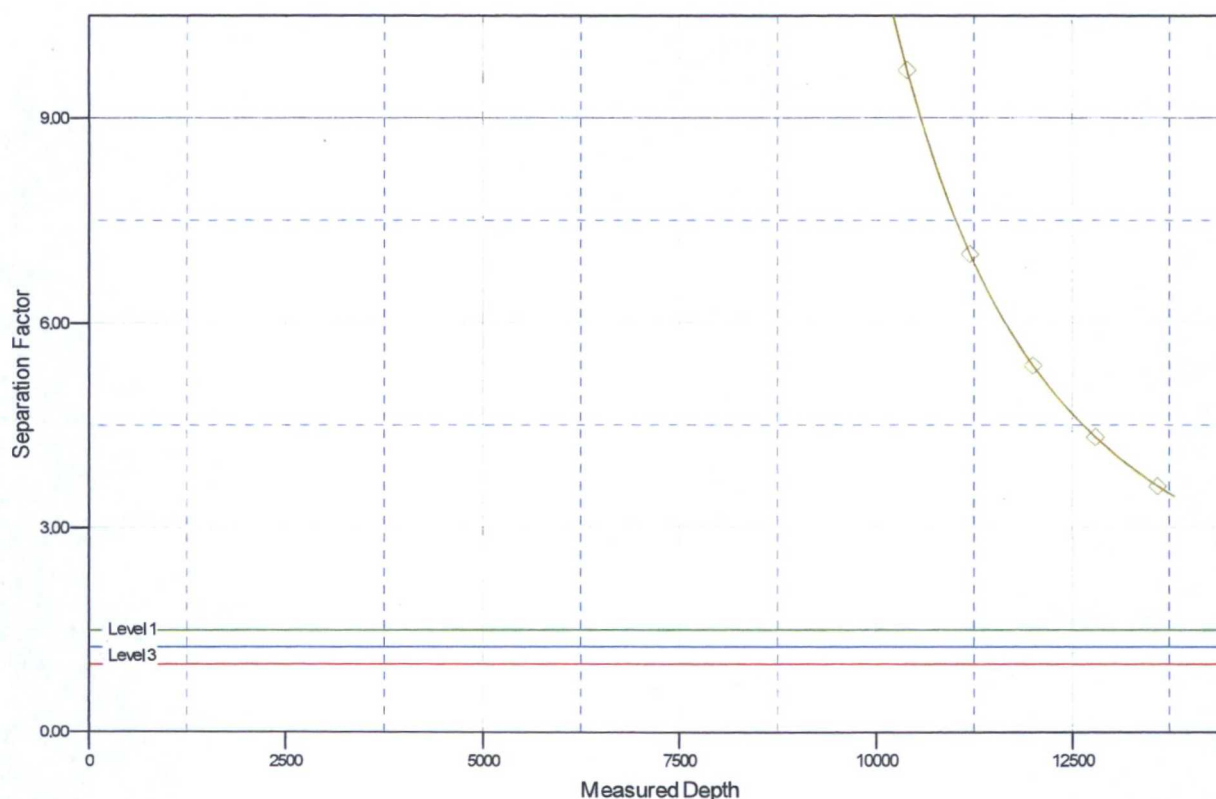


Company:	COG Operating, LLC	Local Co-ordinate Reference:	Well Monet Federal #9H
Project:	Lea County, NM	TVD Reference:	well @ 3480.0usft (McVay #7)
Reference Site:	Sec 4, T25S, R33E	MD Reference:	well @ 3480.0usft (McVay #7)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Compass
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to well @ 3480.0usft (McVay #7)
Offset Depths are relative to Offset Datum
Central Meridian is 104° 20' 0.000 W

Coordinates are relative to: Monet Federal #9H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
Grid Convergence at Surface is: 0.40°

Separation Factor Plot



LEGEND

Monet Federal #10H, Wellbore #1, Design #1 V0 Monet Federal #10H, Pilot Hole, Design #1 V0



COG Operating, LLC

Lea County, NM

Sec 4, T25S, R33E

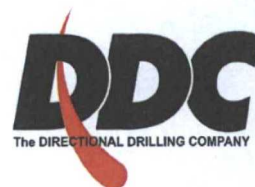
Monet Federal #9H

Wellbore #1

Plan: Design #1

DDC Curve Report

03 December, 2015



Database:	Compass	Local Co-ordinate Reference:	Well Monet Federal #9H
Company:	COG Operating, LLC	TVD Reference:	well @ 3480.0usft (McVay #7)
Project:	Lea County, NM	MD Reference:	well @ 3480.0usft (McVay #7)
Site:	Sec 4, T25S, R33E	North Reference:	Grid
Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea County, NM		
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	Sec 4, T25S, R33E		
Site Position:		Northing:	424,999.76 usft
From:	Lat/Long	Easting:	731,880.25 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 9' 58.399 N
		Longitude:	103° 35' 2.306 W
		Grid Convergence:	0.40 °

Well	Monet Federal #9H		
Well Position	+N/-S	3.9 usft	Northing:
	+E/-W	609.9 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	0.0 usft
		Latitude:	32° 9' 58.396 N
		Longitude:	103° 34' 55.211 W
		Ground Level:	3,463.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2015	12/3/2015	7.12
			Dip Angle
			(°)
			Field Strength
			(nT)
			48,061

Design	Design #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			179.90

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,777.6	0.00	0.00	8,777.6	0.0	0.0	0.00	0.00	0.00	0.00	
9,522.6	89.40	179.90	9,255.0	-472.5	0.8	12.00	12.00	24.15	179.90	
13,810.8	89.40	179.90	9,300.0	-4,760.5	8.0	0.00	0.00	0.00	0.00	PBHL - Monet Federa

Database:	Compass	Local Co-ordinate Reference:	Well Monet Federal #9H
Company:	COG Operating, LLC	TVD Reference:	well @ 3480.0usft (McVay #7)
Project:	Lea County, NM	MD Reference:	well @ 3480.0usft (McVay #7)
Site:	Sec 4, T25S, R33E	North Reference:	Grid
Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
KOP / Build 12° / 100'									
8,777.6	0.00	0.00	8,777.6	0.0	0.0	0.0	0.00	0.00	0.00
8,790.0	1.49	179.90	8,790.0	-0.2	0.0	0.2	12.00	12.00	0.00
8,820.0	5.09	179.90	8,819.9	-1.9	0.0	1.9	12.00	12.00	0.00
8,850.0	8.69	179.90	8,849.7	-5.5	0.0	5.5	12.00	12.00	0.00
8,880.0	12.29	179.90	8,879.2	-10.9	0.0	10.9	12.00	12.00	0.00
8,910.0	15.89	179.90	8,908.3	-18.2	0.0	18.2	12.00	12.00	0.00
8,940.0	19.49	179.90	8,936.9	-27.4	0.0	27.4	12.00	12.00	0.00
8,970.0	23.09	179.90	8,964.8	-38.2	0.1	38.2	12.00	12.00	0.00
9,000.0	26.69	179.90	8,992.0	-50.9	0.1	50.9	12.00	12.00	0.00
9,030.0	30.29	179.90	9,018.4	-65.2	0.1	65.2	12.00	12.00	0.00
9,060.0	33.89	179.90	9,043.8	-81.1	0.1	81.1	12.00	12.00	0.00
9,090.0	37.49	179.90	9,068.2	-98.6	0.2	98.6	12.00	12.00	0.00
9,120.0	41.09	179.90	9,091.4	-117.6	0.2	117.6	12.00	12.00	0.00
9,150.0	44.69	179.90	9,113.4	-138.0	0.2	138.0	12.00	12.00	0.00
Bone Springs									
9,164.5	46.43	179.90	9,123.6	-148.4	0.3	148.4	12.00	12.00	0.00
9,180.0	48.29	179.90	9,134.0	-159.8	0.3	159.8	12.00	12.00	0.00
9,210.0	51.89	179.90	9,153.3	-182.8	0.3	182.8	12.00	12.00	0.00
U Avalon Sh									
9,234.9	54.88	179.90	9,168.1	-202.8	0.3	202.8	12.00	12.00	0.00
9,240.0	55.49	179.90	9,171.0	-206.9	0.3	206.9	12.00	12.00	0.00
9,270.0	59.09	179.90	9,187.2	-232.2	0.4	232.2	12.00	12.00	0.00
9,300.0	62.69	179.90	9,201.8	-258.4	0.4	258.4	12.00	12.00	0.00
9,330.0	66.29	179.90	9,214.8	-285.5	0.5	285.5	12.00	12.00	0.00
9,360.0	69.89	179.90	9,225.9	-313.3	0.5	313.3	12.00	12.00	0.00
9,390.0	73.49	179.90	9,235.4	-341.8	0.6	341.8	12.00	12.00	0.00
9,420.0	77.09	179.90	9,243.0	-370.8	0.6	370.8	12.00	12.00	0.00
9,450.0	80.69	179.90	9,248.8	-400.2	0.7	400.2	12.00	12.00	0.00
9,480.0	84.29	179.90	9,252.7	-429.9	0.7	429.9	12.00	12.00	0.00
9,510.0	87.89	179.90	9,254.7	-459.9	0.8	459.9	12.00	12.00	0.00
Landing @ 89.4° Inc. / 179.9° Azm / 9255' TVD									
9,522.6	89.40	179.90	9,255.0	-472.5	0.8	472.5	12.00	12.00	0.00
TD @ 13811' MD / 9300' TVD									
13,810.8	89.40	179.90	9,300.0	-4,760.5	8.0	4,760.5	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL - Monet Federal #	91.60	179.90	9,300.0	-4,760.5	8.0	420,243.20	732,498.20	32° 9' 11.287 N	103° 34' 55.504 W
- plan hits target center									
- Rectangle (sides W100.0 H0.0 D4,288.2)									

Database:	Compass	Local Co-ordinate Reference:	Well Monet Federal #9H
Company:	COG Operating, LLC	TVD Reference:	well @ 3480.0usft (McVay #7)
Project:	Lea County, NM	MD Reference:	well @ 3480.0usft (McVay #7)
Site:	Sec 4, T25S, R33E	North Reference:	Grid
Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,140.0	1,140.0	Rustler		0.60	179.90	
1,435.0	1,435.0	TOS		0.60	179.90	
4,809.0	4,809.0	BOS		0.60	179.90	
5,055.0	5,055.0	LMAR		0.60	179.90	
5,105.0	5,105.0	BLCN		0.60	179.90	
6,105.0	6,105.0	CYCN		0.60	179.90	
7,549.0	7,549.0	BYCN		0.60	179.90	
9,164.5	9,123.6	Bone Springs		0.60	179.90	
9,234.9	9,168.1	U Avalon Sh		0.60	179.90	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
8,777.6	8,777.6	0.0	0.0	KOP / Build 12° / 100'	
9,522.6	9,255.0	-472.5	0.8	Landing @ 89.4° Inc. / 179.9° Azm / 9255' TVD	
13,810.8	9,300.0	-4,760.5	8.0	TD @ 13811' MD / 9300' TVD	



COG Operating, LLC

Lea County, NM

Sec 4, T25S, R33E

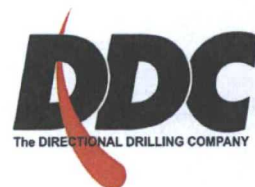
Monet Federal #9H

Wellbore #1

Plan: Design #1

DDC Well Planning Report

03 December, 2015



Database:	Compass	Local Co-ordinate Reference:	Well Monet Federal #9H
Company:	COG Operating, LLC	TVD Reference:	well @ 3480.0usft (McVay #7)
Project:	Lea County, NM	MD Reference:	well @ 3480.0usft (McVay #7)
Site:	Sec 4, T25S, R33E	North Reference:	Grid
Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea County, NM		
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		Sec 4, T25S, R33E			
Site Position:		Northing:	424,999.76 usft	Latitude:	32° 9' 58.399 N
From:	Lat/Long	Easting:	731,880.25 usft	Longitude:	103° 35' 2.306 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	Monet Federal #9H					
Well Position	+N/-S	3.9 usft	Northing:	425,003.65 usft	Latitude:	32° 9' 58.396 N
	+E/-W	609.9 usft	Easting:	732,490.17 usft	Longitude:	103° 34' 55.211 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	3,463.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/3/2015	7.12	60.03	48,061

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	179.90

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,777.6	0.00	0.00	8,777.6	0.0	0.0	0.00	0.00	0.00	0.00	
9,522.6	89.40	179.90	9,255.0	-472.5	0.8	12.00	12.00	24.15	179.90	
13,810.8	89.40	179.90	9,300.0	-4,760.5	8.0	0.00	0.00	0.00	0.00	PBHL - Monet Federa

Database:	Compass	Local Co-ordinate Reference:	Well Monet Federal #9H
Company:	COG Operating, LLC	TVD Reference:	well @ 3480.0usft (McVay #7)
Project:	Lea County, NM	MD Reference:	well @ 3480.0usft (McVay #7)
Site:	Sec 4, T25S, R33E	North Reference:	Grid
Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
1,140.0	0.00	0.00	1,140.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
TOS									
1,435.0	0.00	0.00	1,435.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	Compass	Local Co-ordinate Reference:	Well Monet Federal #9H
Company:	COG Operating, LLC	TVD Reference:	well @ 3480.0usft (McVay #7)
Project:	Lea County, NM	MD Reference:	well @ 3480.0usft (McVay #7)
Site:	Sec 4, T25S, R33E	North Reference:	Grid
Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
BOS									
4,809.0	0.00	0.00	4,809.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
LMAR									
5,055.0	0.00	0.00	5,055.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
BLCN									
5,105.0	0.00	0.00	5,105.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
CYCN									
6,105.0	0.00	0.00	6,105.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
BYCN									
7,549.0	0.00	0.00	7,549.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP / Build 12° / 100'									
8,777.6	0.00	0.00	8,777.6	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	2.69	179.90	8,800.0	-0.5	0.0	0.5	12.00	12.00	0.00
8,900.0	14.69	179.90	8,898.7	-15.6	0.0	15.6	12.00	12.00	0.00

Database:	Compass	Local Co-ordinate Reference:	Well Monet Federal #9H
Company:	COG Operating, LLC	TVD Reference:	well @ 3480.0usft (McVay #7)
Project:	Lea County, NM	MD Reference:	well @ 3480.0usft (McVay #7)
Site:	Sec 4, T25S, R33E	North Reference:	Grid
Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)	
9,000.0	26.69	179.90	8,992.0	-50.9	0.1	50.9	12.00	12.00	0.00	
9,100.0	38.69	179.90	9,076.1	-104.8	0.2	104.8	12.00	12.00	0.00	
Bone Springs										
9,164.5	46.43	179.90	9,123.6	-148.4	0.3	148.4	12.00	12.00	0.00	
9,200.0	50.69	179.90	9,147.0	-175.0	0.3	175.0	12.00	12.00	0.00	
U Avalon Sh										
9,234.9	54.88	179.90	9,168.1	-202.8	0.3	202.8	12.00	12.00	0.00	
9,300.0	62.69	179.90	9,201.8	-258.4	0.4	258.4	12.00	12.00	0.00	
9,400.0	74.69	179.90	9,238.1	-351.4	0.6	351.4	12.00	12.00	0.00	
9,500.0	86.69	179.90	9,254.3	-449.9	0.8	449.9	12.00	12.00	0.00	
Landing @ 89.4° Inc. / 179.9° Azm / 9255' TVD										
9,522.6	89.40	179.90	9,255.0	-472.5	0.8	472.5	12.00	12.00	0.00	
9,600.0	89.40	179.90	9,255.9	-549.9	0.9	549.9	0.00	0.00	0.00	
9,700.0	89.40	179.90	9,256.9	-649.9	1.1	649.9	0.00	0.00	0.00	
9,800.0	89.40	179.90	9,257.9	-749.8	1.3	749.8	0.00	0.00	0.00	
9,900.0	89.40	179.90	9,259.0	-849.8	1.4	849.8	0.00	0.00	0.00	
10,000.0	89.40	179.90	9,260.0	-949.8	1.6	949.8	0.00	0.00	0.00	
10,100.0	89.40	179.90	9,261.1	-1,049.8	1.8	1,049.8	0.00	0.00	0.00	
10,200.0	89.40	179.90	9,262.1	-1,149.8	1.9	1,149.8	0.00	0.00	0.00	
10,300.0	89.40	179.90	9,263.2	-1,249.8	2.1	1,249.8	0.00	0.00	0.00	
10,400.0	89.40	179.90	9,264.2	-1,349.8	2.3	1,349.8	0.00	0.00	0.00	
10,500.0	89.40	179.90	9,265.3	-1,449.8	2.4	1,449.8	0.00	0.00	0.00	
10,600.0	89.40	179.90	9,266.3	-1,549.8	2.6	1,549.8	0.00	0.00	0.00	
10,700.0	89.40	179.90	9,267.4	-1,649.8	2.8	1,649.8	0.00	0.00	0.00	
10,800.0	89.40	179.90	9,268.4	-1,749.8	3.0	1,749.8	0.00	0.00	0.00	
10,900.0	89.40	179.90	9,269.5	-1,849.8	3.1	1,849.8	0.00	0.00	0.00	
11,000.0	89.40	179.90	9,270.5	-1,949.8	3.3	1,949.8	0.00	0.00	0.00	
11,100.0	89.40	179.90	9,271.6	-2,049.8	3.5	2,049.8	0.00	0.00	0.00	
11,200.0	89.40	179.90	9,272.6	-2,149.8	3.6	2,149.8	0.00	0.00	0.00	
11,300.0	89.40	179.90	9,273.7	-2,249.8	3.8	2,249.8	0.00	0.00	0.00	
11,400.0	89.40	179.90	9,274.7	-2,349.8	4.0	2,349.8	0.00	0.00	0.00	
11,500.0	89.40	179.90	9,275.8	-2,449.8	4.1	2,449.8	0.00	0.00	0.00	
11,600.0	89.40	179.90	9,276.8	-2,549.7	4.3	2,549.8	0.00	0.00	0.00	
11,700.0	89.40	179.90	9,277.9	-2,649.7	4.5	2,649.7	0.00	0.00	0.00	
11,800.0	89.40	179.90	9,278.9	-2,749.7	4.6	2,749.7	0.00	0.00	0.00	
11,900.0	89.40	179.90	9,280.0	-2,849.7	4.8	2,849.7	0.00	0.00	0.00	
12,000.0	89.40	179.90	9,281.0	-2,949.7	5.0	2,949.7	0.00	0.00	0.00	
12,100.0	89.40	179.90	9,282.1	-3,049.7	5.1	3,049.7	0.00	0.00	0.00	
12,200.0	89.40	179.90	9,283.1	-3,149.7	5.3	3,149.7	0.00	0.00	0.00	
12,300.0	89.40	179.90	9,284.2	-3,249.7	5.5	3,249.7	0.00	0.00	0.00	
12,400.0	89.40	179.90	9,285.2	-3,349.7	5.6	3,349.7	0.00	0.00	0.00	
12,500.0	89.40	179.90	9,286.3	-3,449.7	5.8	3,449.7	0.00	0.00	0.00	
12,600.0	89.40	179.90	9,287.3	-3,549.7	6.0	3,549.7	0.00	0.00	0.00	
12,700.0	89.40	179.90	9,288.4	-3,649.7	6.2	3,649.7	0.00	0.00	0.00	
12,800.0	89.40	179.90	9,289.4	-3,749.7	6.3	3,749.7	0.00	0.00	0.00	
12,900.0	89.40	179.90	9,290.4	-3,849.7	6.5	3,849.7	0.00	0.00	0.00	
13,000.0	89.40	179.90	9,291.5	-3,949.7	6.7	3,949.7	0.00	0.00	0.00	
13,100.0	89.40	179.90	9,292.5	-4,049.7	6.8	4,049.7	0.00	0.00	0.00	
13,200.0	89.40	179.90	9,293.6	-4,149.7	7.0	4,149.7	0.00	0.00	0.00	
13,300.0	89.40	179.90	9,294.6	-4,249.7	7.2	4,249.7	0.00	0.00	0.00	
13,400.0	89.40	179.90	9,295.7	-4,349.6	7.3	4,349.7	0.00	0.00	0.00	
13,500.0	89.40	179.90	9,296.7	-4,449.6	7.5	4,449.6	0.00	0.00	0.00	
13,600.0	89.40	179.90	9,297.8	-4,549.6	7.7	4,549.6	0.00	0.00	0.00	

Database:	Compass	Local Co-ordinate Reference:	Well Monet Federal #9H
Company:	COG Operating, LLC	TVD Reference:	well @ 3480.0usft (McVay #7)
Project:	Lea County, NM	MD Reference:	well @ 3480.0usft (McVay #7)
Site:	Sec 4, T25S, R33E	North Reference:	Grid
Well:	Monet Federal #9H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
13,700.0	89.40	179.90	9,298.8	-4,649.6	7.8	4,649.6	0.00	0.00	0.00
13,800.0	89.40	179.90	9,299.9	-4,749.6	8.0	4,749.6	0.00	0.00	0.00
TD @ 13811' MD / 9300' TVD									
13,810.8	89.40	179.90	9,300.0	-4,760.5	8.0	4,760.5	0.00	0.00	0.00

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		
- hit/miss target										
- Shape								Longitude		
PBHL - Monet Federal #	91.60	179.90	9,300.0	-4,760.5	8.0	420,243.20	732,498.20	32° 9' 11.287 N 103° 34' 55.504 W		
- plan hits target center										
- Rectangle (sides W100.0 H0.0 D4,288.2)										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,140.0	1,140.0	Rustler		0.60	179.90	
1,435.0	1,435.0	TOS		0.60	179.90	
4,809.0	4,809.0	BOS		0.60	179.90	
5,055.0	5,055.0	LMAR		0.60	179.90	
5,105.0	5,105.0	BLCN		0.60	179.90	
6,105.0	6,105.0	CYCN		0.60	179.90	
7,549.0	7,549.0	BYCN		0.60	179.90	
9,164.5	9,123.6	Bone Springs		0.60	179.90	
9,234.9	9,168.1	U Avalon Sh		0.60	179.90	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
8,777.6	8,777.6	0.0	0.0	KOP / Build 12° / 100'	
9,522.6	9,255.0	-472.5	0.8	Landing @ 89.4° Inc. / 179.9° Azm / 9255' TVD	
13,810.8	9,300.0	-4,760.5	8.0	TD @ 13811' MD / 9300' TVD	

Company Name: COG Operating, LLC
 Monet Federal #9H
 Lea County, NM
 Rig: McVay #7
 Created By: Will Jirick
 Date: 12/3/2015

Monet Federal #9H
 Lea County, NM
 Q150*** & WT-150***
 Design #1

PROJECT DETAILS: Lea County, NM

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



ANNOTATIONS

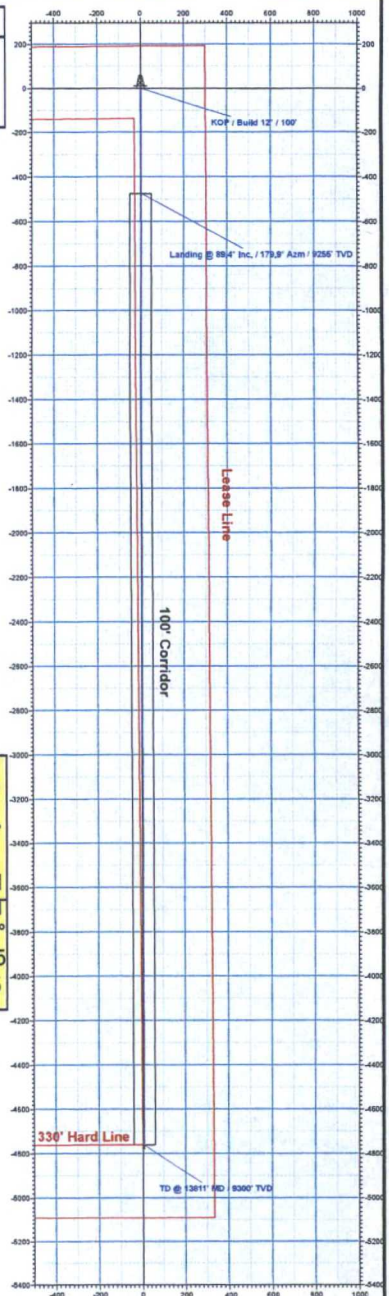
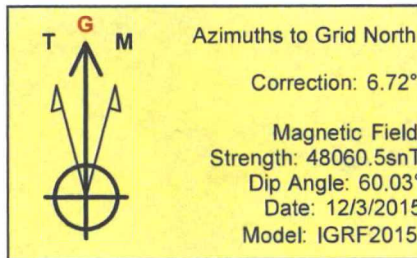
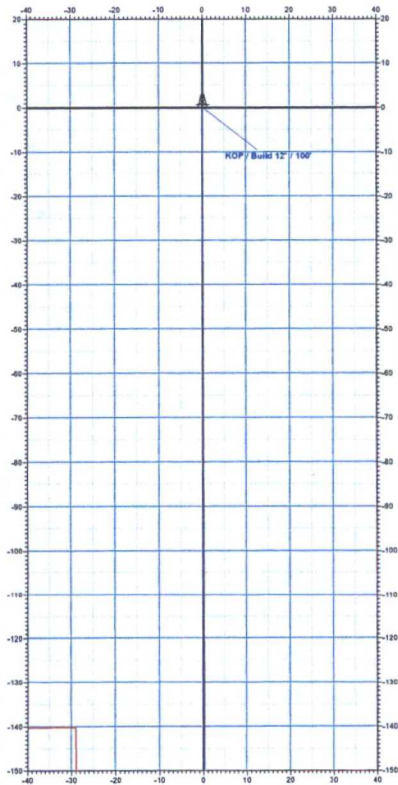
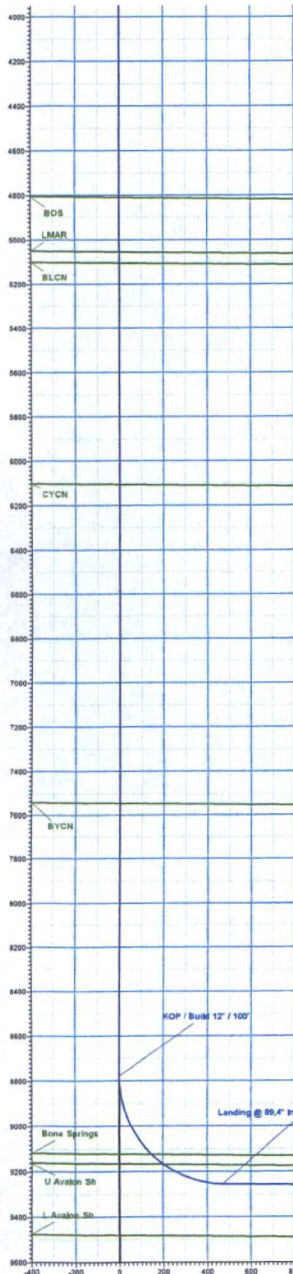
MD	Inc	Azi	TVD	+N/-S	+E/-W	V-Sect	Departure	Annotation
8777.6	0.00	0.00	8777.6	0.0	0.0	0.0	0.0	KOP / Build 12" / 100'
9522.6	89.40	179.90	9255.0	-472.5	0.8	472.5	472.5	Landing @ 89.4° Inc. / 179.9° Azim / 9255' TVD
13810.9	89.40	179.90	9300.0	-4769.5	0.0	4769.5	4769.5	TD @ 13811' MD / 9300' TVD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL - Monet Federal #9H	9300.0	-4769.5	0.0	429243.20	732499.20	32° 9' 11.287 N	103° 34' 55.504 W
- plan hits target center							

WELL DETAILS: Monet Federal #9H

+N/-S	+E/-W	Northing	Easting	Ground Level	Latitude	Longitude
0.0	0.0	429003.65	732490.17	3463.0	32° 9' 58.396 N	103° 34' 55.211 W



Vertical Section at 179.90° (200 usf/in)