Form 3160-5
(August 2007)

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.

HOBBS OCD

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

SEP 17 2014

RECEIVED

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	5. Lease Serial No. NMNM107392
	6. If Indian, Allottee or Tribe Name
	7. If Unit or CA/Agreement, Name and/or No.
	8. Well Name and No. NIGHTCAP 6 FEDERAL 3H
2. Name of Operator COG OPERATING LLC Contact: MAYTE X REYES E-Mail: mreyes1@concho.com	9. API Well No. 30-025-41589-00-X1
3a. Address ONE CONCHO CENTER 600 W ILLINOIS AVENUE MIDLAND, TX 79701-4287 3b. Phone No. (include area code) Ph: 575-748-6945	10. Field and Pool, or Exploratory LUSK
4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)* Sec 6 T20S R32E Lot 3 330FNL 2020FWL	11. County or Parish, and State LEA COUNTY, NM

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 to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ 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 recomplete 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 recompletion 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.

Attached is the new plat with the updated well plan.
Operator will drill out of the 9-5/8? with an 8-3/4? hole size.
Operator will drill to TD= 19,086 MD/ 9460 TVD with 8-3/4? hole size.
Operator will run 5-1/2? P110 TXP BTC casing to TD.
Operator will pump the following production cement job:
Lead: 1100 sx 35:65:6 H Blend (12.7 ppg ? 2 cf/ft)
Tail: 2700 sx 50:50:2 H Blend (14.4 ppg ? 1.24 cf/ft)

Original COAs plus Sundry COAs Still Stand

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

Electronic Submission #260379 verified by the BLM Well Information System
For COG OPERATING LLC, sent to the Hobbs
Committed to AFMSS for processing by JENNIFER MASON on 09/15/2014 (14JAM0091SE)

Name *(Printed/Typed)* MAYTE X REYES — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 09/03/2014

APPROVED
SEP 15 2014
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title _____ 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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

SEP 19 2014

COMPANY: COG Operating, LLC.
WELL: Nightcap 6 Federal #3H
COUNTY: Lea County, N.M. Nad (83)
DATUM: North American Datum 1983
RIG: Precision 590
GRID CORRECTION: **To convert a Magnetic Direction to a Grid Direction, Add 7.05°**

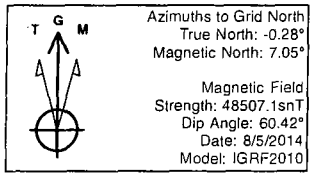
OFFICE: 936.582.7296

GEODETIC ZONE: New Mexico Eastern Zone
GL 3514.2+26 @ 3540.2usft (Precision 590)
GROUND ELEVATION: 3514.2

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	585593.93	703231.57	32° 36' 31.496 N	103° 48' 27.267 W	

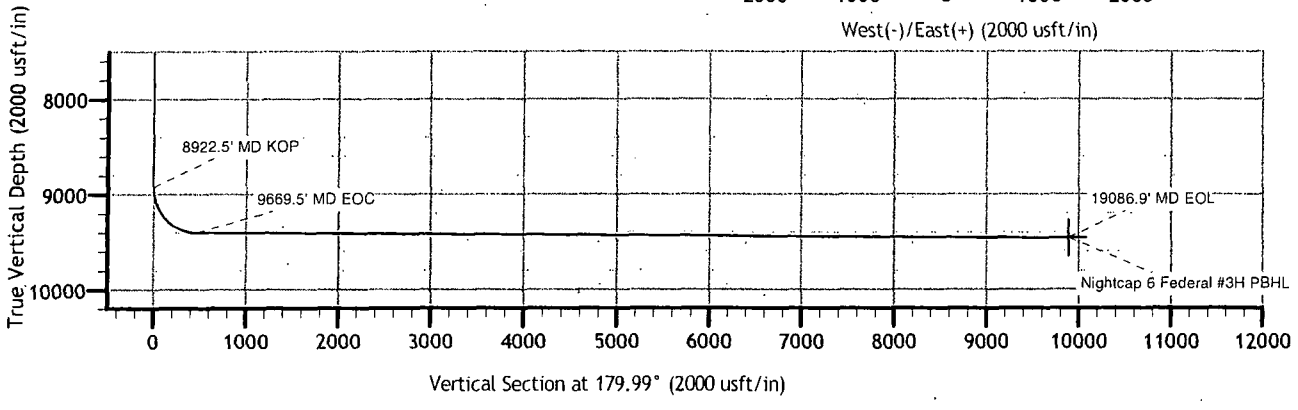
PLAN SECTIONS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	8922.5	0.00	0.00	8922.5	0.0	0.0	0.00	0.00	0.0	
3	9669.5	89.63	179.99	9400.0	-474.4	0.1	12.00	179.99	474.4	
4	19086.9	89.63	179.99	9460.0	-9891.6	1.9	0.00	0.00	9891.6	Nightcap 6 Federal #3H PBHL



Azimuths to Grid North
True North: -0.28°
Magnetic North: 7.05°

Magnetic Field
Strength: 48507.1snT
Dip Angle: 60.42°
Date: 8/5/2014
Model: IGRF2010



COG Operating, LLC.

Lea County, N.M. Nad (83)
Section 6/7 T20-S R32-E Nightcap 6 Federal #3H
Nightcap 6 Federal #3H

Original Hole

Plan: Plan #1

Standard Planning Report

06 August, 2014

Stryker Directional
Planning Report

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Project Lea County, N.M. Nad (83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Section 6/7 T20-S R32-E Nightcap 6 Federal #3H

Site Position:		**Northing:**	585,593.93 usft	**Latitude:**	32° 36' 31.496 N
From:	Map	**Easting:**	703,231.57 usft	**Longitude:**	103° 48' 27.267 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.28 °

Well Nightcap 6 Federal #3H

Well Position	**+N/-S**	0.0 usft	**Northing:**	585,593.93 usft	**Latitude:**	32° 36' 31.496 N
	+E/-W	0.0 usft	**Easting:**	703,231.57 usft	**Longitude:**	103° 48' 27.267 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	3,514.2 usft

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/5/2014	7.34	60.42	48,507

Design Plan #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	179.99

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	
8,922.5	0.00	0.00	8,922.5	0.0	0.0	0.00	0.00	0.00	0.00	
9,669.5	89.63	179.99	9,400.0	-474.4	0.1	12.00	12.00	24.10	179.99	
19,086.9	89.63	179.99	9,460.0	-9,891.6	1.9	0.00	0.00	0.00	0.00	Nightcap 6 Federal

Stryker Directional
Planning Report

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #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
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
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
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
5,100.0	0.00	0.00	5,100.0	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

Stryker Directional

Planning Report

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #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)
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
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
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
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,922.5	0.00	0.00	8,922.5	0.0	0.0	0.0	0.00	0.00	0.00
8922.5' MD KOP									
8,925.0	0.30	179.99	8,925.0	0.0	0.0	0.0	12.00	12.00	0.00
8,950.0	3.30	179.99	8,950.0	-0.8	0.0	0.8	12.00	12.00	0.00
8,975.0	6.30	179.99	8,974.9	-2.9	0.0	2.9	12.00	12.00	0.00
9,000.0	9.30	179.99	8,999.7	-6.3	0.0	6.3	12.00	12.00	0.00
9,025.0	12.30	179.99	9,024.2	-11.0	0.0	11.0	12.00	12.00	0.00
9,050.0	15.30	179.99	9,048.5	-16.9	0.0	16.9	12.00	12.00	0.00
9,075.0	18.30	179.99	9,072.4	-24.1	0.0	24.1	12.00	12.00	0.00
9,100.0	21.30	179.99	9,095.9	-32.6	0.0	32.6	12.00	12.00	0.00
9,125.0	24.30	179.99	9,119.0	-42.3	0.0	42.3	12.00	12.00	0.00
9,150.0	27.30	179.99	9,141.5	-53.2	0.0	53.2	12.00	12.00	0.00
9,175.0	30.30	179.99	9,163.4	-65.2	0.0	65.2	12.00	12.00	0.00
9,200.0	33.30	179.99	9,184.6	-78.4	0.0	78.4	12.00	12.00	0.00
9,225.0	36.30	179.99	9,205.2	-92.7	0.0	92.7	12.00	12.00	0.00
9,250.0	39.30	179.99	9,224.9	-108.0	0.0	108.0	12.00	12.00	0.00

Stryker Directional

Planning Report

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #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)
9,275.0	42.30	179.99	9,243.8	-124.3	0.0	124.3	12.00	12.00	0.00
9,300.0	45.30	179.99	9,261.9	-141.6	0.0	141.6	12.00	12.00	0.00
9,325.0	48.30	179.99	9,279.0	-159.8	0.0	159.8	12.00	12.00	0.00
9,350.0	51.30	179.99	9,295.1	-178.9	0.0	178.9	12.00	12.00	0.00
9,375.0	54.30	179.99	9,310.2	-198.8	0.0	198.8	12.00	12.00	0.00
9,400.0	57.30	179.99	9,324.3	-219.5	0.0	219.5	12.00	12.00	0.00
9,425.0	60.30	179.99	9,337.2	-240.9	0.0	240.9	12.00	12.00	0.00
9,450.0	63.30	179.99	9,349.1	-262.9	0.1	262.9	12.00	12.00	0.00
9,475.0	66.30	179.99	9,359.7	-285.5	0.1	285.5	12.00	12.00	0.00
9,500.0	69.30	179.99	9,369.1	-308.7	0.1	308.7	12.00	12.00	0.00
9,525.0	72.30	179.99	9,377.4	-332.3	0.1	332.3	12.00	12.00	0.00
9,550.0	75.30	179.99	9,384.3	-356.3	0.1	356.3	12.00	12.00	0.00
9,575.0	78.30	179.99	9,390.0	-380.6	0.1	380.6	12.00	12.00	0.00
9,600.0	81.30	179.99	9,394.5	-405.2	0.1	405.2	12.00	12.00	0.00
9,625.0	84.30	179.99	9,397.6	-430.0	0.1	430.0	12.00	12.00	0.00
9,650.0	87.30	179.99	9,399.4	-455.0	0.1	455.0	12.00	12.00	0.00
9,669.5	89.63	179.99	9,400.0	-474.5	0.1	474.5	11.97	11.97	0.00
9669.5' MD EOC									
9,700.0	89.63	179.99	9,400.1	-505.0	0.1	505.0	0.00	0.00	0.00
9,800.0	89.63	179.99	9,400.8	-605.0	0.1	605.0	0.00	0.00	0.00
9,900.0	89.63	179.99	9,401.4	-705.0	0.1	705.0	0.00	0.00	0.00
10,000.0	89.63	179.99	9,402.1	-805.0	0.2	805.0	0.00	0.00	0.00
10,100.0	89.63	179.99	9,402.7	-905.0	0.2	905.0	0.00	0.00	0.00
10,200.0	89.63	179.99	9,403.3	-1,005.0	0.2	1,005.0	0.00	0.00	0.00
10,300.0	89.63	179.99	9,404.0	-1,105.0	0.2	1,105.0	0.00	0.00	0.00
10,400.0	89.63	179.99	9,404.6	-1,204.9	0.2	1,204.9	0.00	0.00	0.00
10,500.0	89.63	179.99	9,405.3	-1,304.9	0.3	1,304.9	0.00	0.00	0.00
10,600.0	89.63	179.99	9,405.9	-1,404.9	0.3	1,404.9	0.00	0.00	0.00
10,700.0	89.63	179.99	9,406.5	-1,504.9	0.3	1,504.9	0.00	0.00	0.00
10,800.0	89.63	179.99	9,407.2	-1,604.9	0.3	1,604.9	0.00	0.00	0.00
10,900.0	89.63	179.99	9,407.8	-1,704.9	0.3	1,704.9	0.00	0.00	0.00
11,000.0	89.63	179.99	9,408.4	-1,804.9	0.4	1,804.9	0.00	0.00	0.00
11,100.0	89.63	179.99	9,409.1	-1,904.9	0.4	1,904.9	0.00	0.00	0.00
11,200.0	89.63	179.99	9,409.7	-2,004.9	0.4	2,004.9	0.00	0.00	0.00
11,300.0	89.63	179.99	9,410.4	-2,104.9	0.4	2,104.9	0.00	0.00	0.00
11,400.0	89.63	179.99	9,411.0	-2,204.9	0.4	2,204.9	0.00	0.00	0.00
11,500.0	89.63	179.99	9,411.6	-2,304.9	0.5	2,304.9	0.00	0.00	0.00
11,600.0	89.63	179.99	9,412.3	-2,404.9	0.5	2,404.9	0.00	0.00	0.00
11,700.0	89.63	179.99	9,412.9	-2,504.9	0.5	2,504.9	0.00	0.00	0.00
11,800.0	89.63	179.99	9,413.5	-2,604.9	0.5	2,604.9	0.00	0.00	0.00
11,900.0	89.63	179.99	9,414.2	-2,704.9	0.5	2,704.9	0.00	0.00	0.00
12,000.0	89.63	179.99	9,414.8	-2,804.9	0.6	2,804.9	0.00	0.00	0.00
12,100.0	89.63	179.99	9,415.5	-2,904.9	0.6	2,904.9	0.00	0.00	0.00
12,200.0	89.63	179.99	9,416.1	-3,004.9	0.6	3,004.9	0.00	0.00	0.00
12,300.0	89.63	179.99	9,416.7	-3,104.9	0.6	3,104.9	0.00	0.00	0.00
12,400.0	89.63	179.99	9,417.4	-3,204.9	0.6	3,204.9	0.00	0.00	0.00
12,500.0	89.63	179.99	9,418.0	-3,304.9	0.6	3,304.9	0.00	0.00	0.00
12,600.0	89.63	179.99	9,418.6	-3,404.9	0.7	3,404.9	0.00	0.00	0.00
12,700.0	89.63	179.99	9,419.3	-3,504.9	0.7	3,504.9	0.00	0.00	0.00
12,800.0	89.63	179.99	9,419.9	-3,604.9	0.7	3,604.9	0.00	0.00	0.00
12,900.0	89.63	179.99	9,420.6	-3,704.9	0.7	3,704.9	0.00	0.00	0.00
13,000.0	89.63	179.99	9,421.2	-3,804.9	0.7	3,804.9	0.00	0.00	0.00

Stryker Directional

Planning Report

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #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)
13,100.0	89.63	179.99	9,421.8	-3,904.9	0.8	3,904.9	0.00	0.00	0.00
13,200.0	89.63	179.99	9,422.5	-4,004.9	0.8	4,004.9	0.00	0.00	0.00
13,300.0	89.63	179.99	9,423.1	-4,104.9	0.8	4,104.9	0.00	0.00	0.00
13,400.0	89.63	179.99	9,423.7	-4,204.9	0.8	4,204.9	0.00	0.00	0.00
13,500.0	89.63	179.99	9,424.4	-4,304.9	0.8	4,304.9	0.00	0.00	0.00
13,600.0	89.63	179.99	9,425.0	-4,404.9	0.9	4,404.9	0.00	0.00	0.00
13,700.0	89.63	179.99	9,425.7	-4,504.9	0.9	4,504.9	0.00	0.00	0.00
13,800.0	89.63	179.99	9,426.3	-4,604.9	0.9	4,604.9	0.00	0.00	0.00
13,900.0	89.63	179.99	9,426.9	-4,704.9	0.9	4,704.9	0.00	0.00	0.00
14,000.0	89.63	179.99	9,427.6	-4,804.9	0.9	4,804.9	0.00	0.00	0.00
14,100.0	89.63	179.99	9,428.2	-4,904.9	1.0	4,904.9	0.00	0.00	0.00
14,200.0	89.63	179.99	9,428.8	-5,004.9	1.0	5,004.9	0.00	0.00	0.00
14,300.0	89.63	179.99	9,429.5	-5,104.9	1.0	5,104.9	0.00	0.00	0.00
14,400.0	89.63	179.99	9,430.1	-5,204.9	1.0	5,204.9	0.00	0.00	0.00
14,500.0	89.63	179.99	9,430.8	-5,304.9	1.0	5,304.9	0.00	0.00	0.00
14,600.0	89.63	179.99	9,431.4	-5,404.9	1.1	5,404.9	0.00	0.00	0.00
14,700.0	89.63	179.99	9,432.0	-5,504.9	1.1	5,504.9	0.00	0.00	0.00
14,800.0	89.63	179.99	9,432.7	-5,604.9	1.1	5,604.9	0.00	0.00	0.00
14,900.0	89.63	179.99	9,433.3	-5,704.9	1.1	5,704.9	0.00	0.00	0.00
15,000.0	89.63	179.99	9,433.9	-5,804.9	1.1	5,804.9	0.00	0.00	0.00
15,100.0	89.63	179.99	9,434.6	-5,904.9	1.2	5,904.9	0.00	0.00	0.00
15,200.0	89.63	179.99	9,435.2	-6,004.9	1.2	6,004.9	0.00	0.00	0.00
15,300.0	89.63	179.99	9,435.9	-6,104.9	1.2	6,104.9	0.00	0.00	0.00
15,400.0	89.63	179.99	9,436.5	-6,204.8	1.2	6,204.8	0.00	0.00	0.00
15,500.0	89.63	179.99	9,437.1	-6,304.8	1.2	6,304.8	0.00	0.00	0.00
15,600.0	89.63	179.99	9,437.8	-6,404.8	1.3	6,404.8	0.00	0.00	0.00
15,700.0	89.63	179.99	9,438.4	-6,504.8	1.3	6,504.8	0.00	0.00	0.00
15,800.0	89.63	179.99	9,439.0	-6,604.8	1.3	6,604.8	0.00	0.00	0.00
15,900.0	89.63	179.99	9,439.7	-6,704.8	1.3	6,704.8	0.00	0.00	0.00
16,000.0	89.63	179.99	9,440.3	-6,804.8	1.3	6,804.8	0.00	0.00	0.00
16,100.0	89.63	179.99	9,441.0	-6,904.8	1.4	6,904.8	0.00	0.00	0.00
16,200.0	89.63	179.99	9,441.6	-7,004.8	1.4	7,004.8	0.00	0.00	0.00
16,300.0	89.63	179.99	9,442.2	-7,104.8	1.4	7,104.8	0.00	0.00	0.00
16,400.0	89.63	179.99	9,442.9	-7,204.8	1.4	7,204.8	0.00	0.00	0.00
16,500.0	89.63	179.99	9,443.5	-7,304.8	1.4	7,304.8	0.00	0.00	0.00
16,600.0	89.63	179.99	9,444.1	-7,404.8	1.5	7,404.8	0.00	0.00	0.00
16,700.0	89.63	179.99	9,444.8	-7,504.8	1.5	7,504.8	0.00	0.00	0.00
16,800.0	89.63	179.99	9,445.4	-7,604.8	1.5	7,604.8	0.00	0.00	0.00
16,900.0	89.63	179.99	9,446.1	-7,704.8	1.5	7,704.8	0.00	0.00	0.00
17,000.0	89.63	179.99	9,446.7	-7,804.8	1.5	7,804.8	0.00	0.00	0.00
17,100.0	89.63	179.99	9,447.3	-7,904.8	1.6	7,904.8	0.00	0.00	0.00
17,200.0	89.63	179.99	9,448.0	-8,004.8	1.6	8,004.8	0.00	0.00	0.00
17,300.0	89.63	179.99	9,448.6	-8,104.8	1.6	8,104.8	0.00	0.00	0.00
17,400.0	89.63	179.99	9,449.2	-8,204.8	1.6	8,204.8	0.00	0.00	0.00
17,500.0	89.63	179.99	9,449.9	-8,304.8	1.6	8,304.8	0.00	0.00	0.00
17,600.0	89.63	179.99	9,450.5	-8,404.8	1.6	8,404.8	0.00	0.00	0.00
17,700.0	89.63	179.99	9,451.2	-8,504.8	1.7	8,504.8	0.00	0.00	0.00
17,800.0	89.63	179.99	9,451.8	-8,604.8	1.7	8,604.8	0.00	0.00	0.00
17,900.0	89.63	179.99	9,452.4	-8,704.8	1.7	8,704.8	0.00	0.00	0.00
18,000.0	89.63	179.99	9,453.1	-8,804.8	1.7	8,804.8	0.00	0.00	0.00
18,100.0	89.63	179.99	9,453.7	-8,904.8	1.7	8,904.8	0.00	0.00	0.00
18,200.0	89.63	179.99	9,454.3	-9,004.8	1.8	9,004.8	0.00	0.00	0.00
18,300.0	89.63	179.99	9,455.0	-9,104.8	1.8	9,104.8	0.00	0.00	0.00

Stryker Directional
Planning Report

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #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)
18,400.0	89.63	179.99	9,455.6	-9,204.8	1.8	9,204.8	0.00	0.00	0.00
18,500.0	89.63	179.99	9,456.3	-9,304.8	1.8	9,304.8	0.00	0.00	0.00
18,600.0	89.63	179.99	9,456.9	-9,404.8	1.8	9,404.8	0.00	0.00	0.00
18,700.0	89.63	179.99	9,457.5	-9,504.8	1.9	9,504.8	0.00	0.00	0.00
18,800.0	89.63	179.99	9,458.2	-9,604.8	1.9	9,604.8	0.00	0.00	0.00
18,900.0	89.63	179.99	9,458.8	-9,704.8	1.9	9,704.8	0.00	0.00	0.00
19,000.0	89.63	179.99	9,459.4	-9,804.8	1.9	9,804.8	0.00	0.00	0.00
19,086.9	89.63	179.99	9,460.0	-9,891.6	1.9	9,891.6	0.00	0.00	0.00
19086.9' MD EOL									

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
Nightcap 6 Federal #3 - plan hits target center - Point	0.00	0.07	9,460.0	-9,891.6	1.9	575,702.29	703,233.51	32° 34' 53.618 N	103° 48' 27.815 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
8,922.5	8,922.5	0.0	0.0	8922.5' MD KOP
9,669.5	9,400.0	-474.5	0.1	9669.5' MD EOC
19,086.9	9,460.0	-9,891.6	1.9	19086.9' MD EOL

COG Operating, LLC.

Lea County, N.M. Nad (83)
Section 6/7 T20-S R32-E Nightcap 6 Federal #3H
Nightcap 6 Federal #3H

Original Hole

Plan: Plan #1

Standard Planning Report - Geographic

06 August, 2014

Stryker Directional

Planning Report - Geographic

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Project Lea County, N.M. Nad (83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Section 6/7 T20-S R32-E Nightcap 6 Federal #3H

Site Position:		**Northing:**	585,593.93 usft	**Latitude:**	32° 36' 31.496 N
From:	Map	**Easting:**	703,231.57 usft	**Longitude:**	103° 48' 27.267 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.28 °

Well Nightcap 6 Federal #3H

Well Position	**+N/-S**	0.0 usft	**Northing:**	585,593.93 usft	**Latitude:**	32° 36' 31.496 N
	+E/-W	0.0 usft	**Easting:**	703,231.57 usft	**Longitude:**	103° 48' 27.267 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	0.0 usft	**Ground Level:**	3,514.2 usft

Wellbore Original Hole

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/5/2014	7.34	60.42	48,507

Design Plan #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	179.99

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	
8,922.5	0.00	0.00	8,922.5	0.0	0.0	0.00	0.00	0.00	0.00	
9,669.5	89.63	179.99	9,400.0	-474.4	0.1	12.00	12.00	24.10	179.99	
19,086.9	89.63	179.99	9,460.0	-9,891.6	1.9	0.00	0.00	0.00	0.00	Nightcap 6 Federal

Stryker Directional

Planning Report - Geographic

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
100.0	0.00	0.00	100.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
200.0	0.00	0.00	200.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
300.0	0.00	0.00	300.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
400.0	0.00	0.00	400.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
500.0	0.00	0.00	500.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
600.0	0.00	0.00	600.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
700.0	0.00	0.00	700.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
800.0	0.00	0.00	800.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
900.0	0.00	0.00	900.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,000.0	0.00	0.00	1,000.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,100.0	0.00	0.00	1,100.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,200.0	0.00	0.00	1,200.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,300.0	0.00	0.00	1,300.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,400.0	0.00	0.00	1,400.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,500.0	0.00	0.00	1,500.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,600.0	0.00	0.00	1,600.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,700.0	0.00	0.00	1,700.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,800.0	0.00	0.00	1,800.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
1,900.0	0.00	0.00	1,900.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,000.0	0.00	0.00	2,000.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,100.0	0.00	0.00	2,100.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,200.0	0.00	0.00	2,200.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,300.0	0.00	0.00	2,300.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,400.0	0.00	0.00	2,400.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,500.0	0.00	0.00	2,500.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,600.0	0.00	0.00	2,600.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,700.0	0.00	0.00	2,700.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,800.0	0.00	0.00	2,800.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
2,900.0	0.00	0.00	2,900.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,000.0	0.00	0.00	3,000.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,100.0	0.00	0.00	3,100.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,200.0	0.00	0.00	3,200.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,300.0	0.00	0.00	3,300.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,400.0	0.00	0.00	3,400.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,500.0	0.00	0.00	3,500.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,600.0	0.00	0.00	3,600.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,700.0	0.00	0.00	3,700.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,800.0	0.00	0.00	3,800.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
3,900.0	0.00	0.00	3,900.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,000.0	0.00	0.00	4,000.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,100.0	0.00	0.00	4,100.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,200.0	0.00	0.00	4,200.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,300.0	0.00	0.00	4,300.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,400.0	0.00	0.00	4,400.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,500.0	0.00	0.00	4,500.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,600.0	0.00	0.00	4,600.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,700.0	0.00	0.00	4,700.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,800.0	0.00	0.00	4,800.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
4,900.0	0.00	0.00	4,900.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
5,000.0	0.00	0.00	5,000.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
5,100.0	0.00	0.00	5,100.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
5,200.0	0.00	0.00	5,200.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
5,300.0	0.00	0.00	5,300.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W

Stryker Directional

Planning Report - Geographic

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,400.0	0.00	0.00	5,400.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
5,500.0	0.00	0.00	5,500.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
5,600.0	0.00	0.00	5,600.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
5,700.0	0.00	0.00	5,700.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
5,800.0	0.00	0.00	5,800.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
5,900.0	0.00	0.00	5,900.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,000.0	0.00	0.00	6,000.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,100.0	0.00	0.00	6,100.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,200.0	0.00	0.00	6,200.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,300.0	0.00	0.00	6,300.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,400.0	0.00	0.00	6,400.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,500.0	0.00	0.00	6,500.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,600.0	0.00	0.00	6,600.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,700.0	0.00	0.00	6,700.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,800.0	0.00	0.00	6,800.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
6,900.0	0.00	0.00	6,900.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,000.0	0.00	0.00	7,000.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,100.0	0.00	0.00	7,100.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,200.0	0.00	0.00	7,200.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,300.0	0.00	0.00	7,300.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,400.0	0.00	0.00	7,400.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,500.0	0.00	0.00	7,500.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,600.0	0.00	0.00	7,600.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,700.0	0.00	0.00	7,700.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,800.0	0.00	0.00	7,800.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
7,900.0	0.00	0.00	7,900.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,000.0	0.00	0.00	8,000.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,100.0	0.00	0.00	8,100.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,200.0	0.00	0.00	8,200.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,300.0	0.00	0.00	8,300.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,400.0	0.00	0.00	8,400.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,500.0	0.00	0.00	8,500.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,600.0	0.00	0.00	8,600.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,700.0	0.00	0.00	8,700.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,800.0	0.00	0.00	8,800.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,900.0	0.00	0.00	8,900.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,922.5	0.00	0.00	8,922.5	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8922.5' MD KOP									
8,925.0	0.30	179.99	8,925.0	0.0	0.0	585,593.93	703,231.57	32° 36' 31.496 N	103° 48' 27.267 W
8,950.0	3.30	179.99	8,950.0	-0.8	0.0	585,593.14	703,231.57	32° 36' 31.488 N	103° 48' 27.267 W
8,975.0	6.30	179.99	8,974.9	-2.9	0.0	585,591.05	703,231.57	32° 36' 31.468 N	103° 48' 27.267 W
9,000.0	9.30	179.99	8,999.7	-6.3	0.0	585,587.66	703,231.57	32° 36' 31.434 N	103° 48' 27.267 W
9,025.0	12.30	179.99	9,024.2	-11.0	0.0	585,582.97	703,231.57	32° 36' 31.388 N	103° 48' 27.267 W
9,050.0	15.30	179.99	9,048.5	-16.9	0.0	585,577.01	703,231.57	32° 36' 31.329 N	103° 48' 27.268 W
9,075.0	18.30	179.99	9,072.4	-24.1	0.0	585,569.79	703,231.57	32° 36' 31.257 N	103° 48' 27.268 W
9,100.0	21.30	179.99	9,095.9	-32.6	0.0	585,561.32	703,231.57	32° 36' 31.173 N	103° 48' 27.268 W
9,125.0	24.30	179.99	9,119.0	-42.3	0.0	585,551.63	703,231.57	32° 36' 31.078 N	103° 48' 27.269 W
9,150.0	27.30	179.99	9,141.5	-53.2	0.0	585,540.75	703,231.58	32° 36' 30.970 N	103° 48' 27.270 W
9,175.0	30.30	179.99	9,163.4	-65.2	0.0	585,528.71	703,231.58	32° 36' 30.851 N	103° 48' 27.270 W
9,200.0	33.30	179.99	9,184.6	-78.4	0.0	585,515.54	703,231.58	32° 36' 30.720 N	103° 48' 27.271 W
9,225.0	36.30	179.99	9,205.2	-92.7	0.0	585,501.27	703,231.58	32° 36' 30.579 N	103° 48' 27.272 W
9,250.0	39.30	179.99	9,224.9	-108.0	0.0	585,485.95	703,231.59	32° 36' 30.428 N	103° 48' 27.273 W
9,275.0	42.30	179.99	9,243.8	-124.3	0.0	585,469.62	703,231.59	32° 36' 30.266 N	103° 48' 27.274 W
9,300.0	45.30	179.99	9,261.9	-141.6	0.0	585,452.31	703,231.59	32° 36' 30.095 N	103° 48' 27.274 W

Stryker Directional

Planning Report - Geographic

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC.	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,325.0	48.30	179.99	9,279.0	-159.8	0.0	585,434.09	703,231.60	32° 36' 29.915 N	103° 48' 27.275 W
9,350.0	51.30	179.99	9,295.1	-178.9	0.0	585,415.00	703,231.60	32° 36' 29.726 N	103° 48' 27.277 W
9,375.0	54.30	179.99	9,310.2	-198.8	0.0	585,395.09	703,231.60	32° 36' 29.529 N	103° 48' 27.278 W
9,400.0	57.30	179.99	9,324.3	-219.5	0.0	585,374.41	703,231.61	32° 36' 29.324 N	103° 48' 27.279 W
9,425.0	60.30	179.99	9,337.2	-240.9	0.0	585,353.03	703,231.61	32° 36' 29.112 N	103° 48' 27.280 W
9,450.0	63.30	179.99	9,349.1	-262.9	0.1	585,331.00	703,231.62	32° 36' 28.895 N	103° 48' 27.281 W
9,475.0	66.30	179.99	9,359.7	-285.5	0.1	585,308.38	703,231.62	32° 36' 28.671 N	103° 48' 27.282 W
9,500.0	69.30	179.99	9,369.1	-308.7	0.1	585,285.24	703,231.63	32° 36' 28.442 N	103° 48' 27.284 W
9,525.0	72.30	179.99	9,377.4	-332.3	0.1	585,261.63	703,231.63	32° 36' 28.208 N	103° 48' 27.285 W
9,550.0	75.30	179.99	9,384.3	-356.3	0.1	585,237.63	703,231.64	32° 36' 27.971 N	103° 48' 27.286 W
9,575.0	78.30	179.99	9,390.0	-380.6	0.1	585,213.29	703,231.64	32° 36' 27.730 N	103° 48' 27.288 W
9,600.0	81.30	179.99	9,394.5	-405.2	0.1	585,188.69	703,231.65	32° 36' 27.486 N	103° 48' 27.289 W
9,625.0	84.30	179.99	9,397.6	-430.0	0.1	585,163.89	703,231.65	32° 36' 27.241 N	103° 48' 27.290 W
9,650.0	87.30	179.99	9,399.4	-455.0	0.1	585,138.96	703,231.65	32° 36' 26.994 N	103° 48' 27.292 W
9,669.5	89.63	179.99	9,400.0	-474.5	0.1	585,119.47	703,231.66	32° 36' 26.801 N	103° 48' 27.293 W
9669.5' MD EOC									
9,700.0	89.63	179.99	9,400.1	-505.0	0.1	585,088.97	703,231.66	32° 36' 26.500 N	103° 48' 27.295 W
9,800.0	89.63	179.99	9,400.8	-605.0	0.1	584,988.97	703,231.68	32° 36' 25.510 N	103° 48' 27.300 W
9,900.0	89.63	179.99	9,401.4	-705.0	0.1	584,888.97	703,231.70	32° 36' 24.521 N	103° 48' 27.306 W
10,000.0	89.63	179.99	9,402.1	-805.0	0.2	584,788.97	703,231.72	32° 36' 23.531 N	103° 48' 27.311 W
10,100.0	89.63	179.99	9,402.7	-905.0	0.2	584,688.98	703,231.74	32° 36' 22.542 N	103° 48' 27.317 W
10,200.0	89.63	179.99	9,403.3	-1,005.0	0.2	584,588.98	703,231.76	32° 36' 21.552 N	103° 48' 27.322 W
10,300.0	89.63	179.99	9,404.0	-1,105.0	0.2	584,488.98	703,231.78	32° 36' 20.563 N	103° 48' 27.328 W
10,400.0	89.63	179.99	9,404.6	-1,204.9	0.2	584,388.98	703,231.80	32° 36' 19.573 N	103° 48' 27.334 W
10,500.0	89.63	179.99	9,405.3	-1,304.9	0.3	584,288.99	703,231.82	32° 36' 18.584 N	103° 48' 27.339 W
10,600.0	89.63	179.99	9,405.9	-1,404.9	0.3	584,188.99	703,231.84	32° 36' 17.594 N	103° 48' 27.345 W
10,700.0	89.63	179.99	9,406.5	-1,504.9	0.3	584,088.99	703,231.86	32° 36' 16.605 N	103° 48' 27.350 W
10,800.0	89.63	179.99	9,407.2	-1,604.9	0.3	583,988.99	703,231.88	32° 36' 15.615 N	103° 48' 27.356 W
10,900.0	89.63	179.99	9,407.8	-1,704.9	0.3	583,888.99	703,231.90	32° 36' 14.626 N	103° 48' 27.361 W
11,000.0	89.63	179.99	9,408.4	-1,804.9	0.4	583,789.00	703,231.92	32° 36' 13.636 N	103° 48' 27.367 W
11,100.0	89.63	179.99	9,409.1	-1,904.9	0.4	583,689.00	703,231.94	32° 36' 12.647 N	103° 48' 27.372 W
11,200.0	89.63	179.99	9,409.7	-2,004.9	0.4	583,589.00	703,231.96	32° 36' 11.657 N	103° 48' 27.378 W
11,300.0	89.63	179.99	9,410.4	-2,104.9	0.4	583,489.00	703,231.98	32° 36' 10.668 N	103° 48' 27.383 W
11,400.0	89.63	179.99	9,411.0	-2,204.9	0.4	583,389.00	703,232.00	32° 36' 9.678 N	103° 48' 27.389 W
11,500.0	89.63	179.99	9,411.6	-2,304.9	0.5	583,289.01	703,232.02	32° 36' 8.689 N	103° 48' 27.395 W
11,600.0	89.63	179.99	9,412.3	-2,404.9	0.5	583,189.01	703,232.04	32° 36' 7.699 N	103° 48' 27.400 W
11,700.0	89.63	179.99	9,412.9	-2,504.9	0.5	583,089.01	703,232.06	32° 36' 6.710 N	103° 48' 27.406 W
11,800.0	89.63	179.99	9,413.5	-2,604.9	0.5	582,989.01	703,232.08	32° 36' 5.720 N	103° 48' 27.411 W
11,900.0	89.63	179.99	9,414.2	-2,704.9	0.5	582,889.01	703,232.10	32° 36' 4.731 N	103° 48' 27.417 W
12,000.0	89.63	179.99	9,414.8	-2,804.9	0.6	582,789.02	703,232.12	32° 36' 3.741 N	103° 48' 27.422 W
12,100.0	89.63	179.99	9,415.5	-2,904.9	0.6	582,689.02	703,232.14	32° 36' 2.752 N	103° 48' 27.428 W
12,200.0	89.63	179.99	9,416.1	-3,004.9	0.6	582,589.02	703,232.16	32° 36' 1.762 N	103° 48' 27.433 W
12,300.0	89.63	179.99	9,416.7	-3,104.9	0.6	582,489.02	703,232.17	32° 36' 0.773 N	103° 48' 27.439 W
12,400.0	89.63	179.99	9,417.4	-3,204.9	0.6	582,389.02	703,232.19	32° 35' 59.783 N	103° 48' 27.445 W
12,500.0	89.63	179.99	9,418.0	-3,304.9	0.6	582,289.03	703,232.21	32° 35' 58.794 N	103° 48' 27.450 W
12,600.0	89.63	179.99	9,418.6	-3,404.9	0.7	582,189.03	703,232.23	32° 35' 57.804 N	103° 48' 27.456 W
12,700.0	89.63	179.99	9,419.3	-3,504.9	0.7	582,089.03	703,232.25	32° 35' 56.815 N	103° 48' 27.461 W
12,800.0	89.63	179.99	9,419.9	-3,604.9	0.7	581,989.03	703,232.27	32° 35' 55.826 N	103° 48' 27.467 W
12,900.0	89.63	179.99	9,420.6	-3,704.9	0.7	581,889.03	703,232.29	32° 35' 54.836 N	103° 48' 27.472 W
13,000.0	89.63	179.99	9,421.2	-3,804.9	0.7	581,789.04	703,232.31	32° 35' 53.847 N	103° 48' 27.478 W
13,100.0	89.63	179.99	9,421.8	-3,904.9	0.8	581,689.04	703,232.33	32° 35' 52.857 N	103° 48' 27.483 W
13,200.0	89.63	179.99	9,422.5	-4,004.9	0.8	581,589.04	703,232.35	32° 35' 51.868 N	103° 48' 27.489 W
13,300.0	89.63	179.99	9,423.1	-4,104.9	0.8	581,489.04	703,232.37	32° 35' 50.878 N	103° 48' 27.494 W
13,400.0	89.63	179.99	9,423.7	-4,204.9	0.8	581,389.04	703,232.39	32° 35' 49.889 N	103° 48' 27.500 W

Stryker Directional

Planning Report - Geographic

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
13,500.0	89.63	179.99	9,424.4	-4,304.9	0.8	581,289.05	703,232.41	32° 35' 48.899 N	103° 48' 27.506 W
13,600.0	89.63	179.99	9,425.0	-4,404.9	0.9	581,189.05	703,232.43	32° 35' 47.910 N	103° 48' 27.511 W
13,700.0	89.63	179.99	9,425.7	-4,504.9	0.9	581,089.05	703,232.45	32° 35' 46.920 N	103° 48' 27.517 W
13,800.0	89.63	179.99	9,426.3	-4,604.9	0.9	580,989.05	703,232.47	32° 35' 45.931 N	103° 48' 27.522 W
13,900.0	89.63	179.99	9,426.9	-4,704.9	0.9	580,889.05	703,232.49	32° 35' 44.941 N	103° 48' 27.528 W
14,000.0	89.63	179.99	9,427.6	-4,804.9	0.9	580,789.06	703,232.51	32° 35' 43.952 N	103° 48' 27.533 W
14,100.0	89.63	179.99	9,428.2	-4,904.9	1.0	580,689.06	703,232.53	32° 35' 42.962 N	103° 48' 27.539 W
14,200.0	89.63	179.99	9,428.8	-5,004.9	1.0	580,589.06	703,232.55	32° 35' 41.973 N	103° 48' 27.544 W
14,300.0	89.63	179.99	9,429.5	-5,104.9	1.0	580,489.06	703,232.57	32° 35' 40.983 N	103° 48' 27.550 W
14,400.0	89.63	179.99	9,430.1	-5,204.9	1.0	580,389.06	703,232.59	32° 35' 39.994 N	103° 48' 27.555 W
14,500.0	89.63	179.99	9,430.8	-5,304.9	1.0	580,289.07	703,232.61	32° 35' 39.004 N	103° 48' 27.561 W
14,600.0	89.63	179.99	9,431.4	-5,404.9	1.1	580,189.07	703,232.63	32° 35' 38.015 N	103° 48' 27.567 W
14,700.0	89.63	179.99	9,432.0	-5,504.9	1.1	580,089.07	703,232.65	32° 35' 37.025 N	103° 48' 27.572 W
14,800.0	89.63	179.99	9,432.7	-5,604.9	1.1	579,989.07	703,232.66	32° 35' 36.036 N	103° 48' 27.578 W
14,900.0	89.63	179.99	9,433.3	-5,704.9	1.1	579,889.07	703,232.68	32° 35' 35.046 N	103° 48' 27.583 W
15,000.0	89.63	179.99	9,433.9	-5,804.9	1.1	579,789.08	703,232.70	32° 35' 34.057 N	103° 48' 27.589 W
15,100.0	89.63	179.99	9,434.6	-5,904.9	1.2	579,689.08	703,232.72	32° 35' 33.067 N	103° 48' 27.594 W
15,200.0	89.63	179.99	9,435.2	-6,004.9	1.2	579,589.08	703,232.74	32° 35' 32.078 N	103° 48' 27.600 W
15,300.0	89.63	179.99	9,435.9	-6,104.9	1.2	579,489.08	703,232.76	32° 35' 31.088 N	103° 48' 27.605 W
15,400.0	89.63	179.99	9,436.5	-6,204.8	1.2	579,389.08	703,232.78	32° 35' 30.099 N	103° 48' 27.611 W
15,500.0	89.63	179.99	9,437.1	-6,304.8	1.2	579,289.09	703,232.80	32° 35' 29.109 N	103° 48' 27.617 W
15,600.0	89.63	179.99	9,437.8	-6,404.8	1.3	579,189.09	703,232.82	32° 35' 28.120 N	103° 48' 27.622 W
15,700.0	89.63	179.99	9,438.4	-6,504.8	1.3	579,089.09	703,232.84	32° 35' 27.130 N	103° 48' 27.628 W
15,800.0	89.63	179.99	9,439.0	-6,604.8	1.3	578,989.09	703,232.86	32° 35' 26.141 N	103° 48' 27.633 W
15,900.0	89.63	179.99	9,439.7	-6,704.8	1.3	578,889.09	703,232.88	32° 35' 25.151 N	103° 48' 27.639 W
16,000.0	89.63	179.99	9,440.3	-6,804.8	1.3	578,789.10	703,232.90	32° 35' 24.162 N	103° 48' 27.644 W
16,100.0	89.63	179.99	9,441.0	-6,904.8	1.4	578,689.10	703,232.92	32° 35' 23.172 N	103° 48' 27.650 W
16,200.0	89.63	179.99	9,441.6	-7,004.8	1.4	578,589.10	703,232.94	32° 35' 22.183 N	103° 48' 27.655 W
16,300.0	89.63	179.99	9,442.2	-7,104.8	1.4	578,489.10	703,232.96	32° 35' 21.193 N	103° 48' 27.661 W
16,400.0	89.63	179.99	9,442.9	-7,204.8	1.4	578,389.11	703,232.98	32° 35' 20.204 N	103° 48' 27.666 W
16,500.0	89.63	179.99	9,443.5	-7,304.8	1.4	578,289.11	703,233.00	32° 35' 19.214 N	103° 48' 27.672 W
16,600.0	89.63	179.99	9,444.1	-7,404.8	1.5	578,189.11	703,233.02	32° 35' 18.225 N	103° 48' 27.678 W
16,700.0	89.63	179.99	9,444.8	-7,504.8	1.5	578,089.11	703,233.04	32° 35' 17.235 N	103° 48' 27.683 W
16,800.0	89.63	179.99	9,445.4	-7,604.8	1.5	577,989.11	703,233.06	32° 35' 16.246 N	103° 48' 27.689 W
16,900.0	89.63	179.99	9,446.1	-7,704.8	1.5	577,889.12	703,233.08	32° 35' 15.257 N	103° 48' 27.694 W
17,000.0	89.63	179.99	9,446.7	-7,804.8	1.5	577,789.12	703,233.10	32° 35' 14.267 N	103° 48' 27.700 W
17,100.0	89.63	179.99	9,447.3	-7,904.8	1.6	577,689.12	703,233.12	32° 35' 13.278 N	103° 48' 27.705 W
17,200.0	89.63	179.99	9,448.0	-8,004.8	1.6	577,589.12	703,233.14	32° 35' 12.288 N	103° 48' 27.711 W
17,300.0	89.63	179.99	9,448.6	-8,104.8	1.6	577,489.12	703,233.16	32° 35' 11.299 N	103° 48' 27.716 W
17,400.0	89.63	179.99	9,449.2	-8,204.8	1.6	577,389.13	703,233.17	32° 35' 10.309 N	103° 48' 27.722 W
17,500.0	89.63	179.99	9,449.9	-8,304.8	1.6	577,289.13	703,233.19	32° 35' 9.320 N	103° 48' 27.727 W
17,600.0	89.63	179.99	9,450.5	-8,404.8	1.6	577,189.13	703,233.21	32° 35' 8.330 N	103° 48' 27.733 W
17,700.0	89.63	179.99	9,451.2	-8,504.8	1.7	577,089.13	703,233.23	32° 35' 7.341 N	103° 48' 27.739 W
17,800.0	89.63	179.99	9,451.8	-8,604.8	1.7	576,989.13	703,233.25	32° 35' 6.351 N	103° 48' 27.744 W
17,900.0	89.63	179.99	9,452.4	-8,704.8	1.7	576,889.14	703,233.27	32° 35' 5.362 N	103° 48' 27.750 W
18,000.0	89.63	179.99	9,453.1	-8,804.8	1.7	576,789.14	703,233.29	32° 35' 4.372 N	103° 48' 27.755 W
18,100.0	89.63	179.99	9,453.7	-8,904.8	1.7	576,689.14	703,233.31	32° 35' 3.383 N	103° 48' 27.761 W
18,200.0	89.63	179.99	9,454.3	-9,004.8	1.8	576,589.14	703,233.33	32° 35' 2.393 N	103° 48' 27.766 W
18,300.0	89.63	179.99	9,455.0	-9,104.8	1.8	576,489.14	703,233.35	32° 35' 1.404 N	103° 48' 27.772 W
18,400.0	89.63	179.99	9,455.6	-9,204.8	1.8	576,389.15	703,233.37	32° 35' 0.414 N	103° 48' 27.777 W
18,500.0	89.63	179.99	9,456.3	-9,304.8	1.8	576,289.15	703,233.39	32° 34' 59.425 N	103° 48' 27.783 W
18,600.0	89.63	179.99	9,456.9	-9,404.8	1.8	576,189.15	703,233.41	32° 34' 58.435 N	103° 48' 27.788 W
18,700.0	89.63	179.99	9,457.5	-9,504.8	1.9	576,089.15	703,233.43	32° 34' 57.446 N	103° 48' 27.794 W
18,800.0	89.63	179.99	9,458.2	-9,604.8	1.9	575,989.15	703,233.45	32° 34' 56.456 N	103° 48' 27.800 W

Stryker Directional

Planning Report - Geographic

Database:	Stryker_EDM	**Local Co-ordinate Reference:**	Well Nightcap 6 Federal #3H
Company:	COG Operating, LLC	**TVD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Project:	Lea County, N.M. Nad (83)	**MD Reference:**	GL 3514.2+26 @ 3540.2usft (Precision 590)
Site:	Section 6/7 T20-S R32-E Nightcap 6 Federal #3H	**North Reference:**	Grid
Well:	Nightcap 6 Federal #3H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Plan #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
18,900.0	89.63	179.99	9,458.8	-9,704.8	1.9	575,889.16	703,233.47	32° 34' 55.467 N	103° 48' 27.805 W
19,000.0	89.63	179.99	9,459.4	-9,804.8	1.9	575,789.16	703,233.49	32° 34' 54.477 N	103° 48' 27.811 W
19,086.9	89.63	179.99	9,460.0	-9,891.6	1.9	575,702.29	703,233.51	32° 34' 53.618 N	103° 48' 27.815 W
19086.9' MD EOL									

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
Nightcap 6 Federal #3 - plan hits target center - Point	0.00	0.07	9,460.0	-9,891.6	1.9	575,702.29	703,233.51	32° 34' 53.618 N	103° 48' 27.815 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
8,922.5	8,922.5	0.0	0.0	8922.5' MD KOP
9,669.5	9,400.0	-474.5	0.1	9669.5' MD EOC
19,086.9	9,460.0	-9,891.6	1.9	19086.9' MD EOL