

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM 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.*5. Lease Serial No.
NMNM0315712

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.**HOBBS OCD**

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator
COG OPERATING LLCContact: KELLY J HOLLY
E-Mail: kholly@conchoresources.com3a. Address
ONE CONCHO CENTER 600 W ILLINOIS AVENUE
MIDLAND, TX 79701-42873b. Phone No. (include area code)
Ph: 432-685-43848. Well Name and No.
SNEED 9 FEDERAL COM 3H9. API Well No.
30-025-41410-00-X110. Field and Pool, or Exploratory
MALJAMAR

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 9 T17S R32E SWNW 1650FNL 330FWL

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 Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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 permission to change the well number, TVD and BHL of this well as follows:

FROM: Sneed 9 Federal Com #3H
TO: Sneed 9 Federal Com #23H

FROM: 6628' TVD; 11,114' MD
TO: 6400' TVD; 12,115' MD

FROM: SHL: 1650' FNL & 330' FWL, Sec 9 T17S R32E, UL E
BHL: 1650' FNL & 330' FEL, Sec 9 T17S R32E, UL H
TO: SHL: 1650' FNL & 330' FWL, Sec 9 T17S R32E, UL E

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

surface hole will remain the same

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

Electronic Submission #291110 verified by the BLM Well Information System
For COG OPERATING LLC, sent to the Hobbs
Committed to AFMSS for processing by LINDA JIMENEZ on 03/17/2015 (15LJ0797SE)

Name (Printed/Typed) KELLY J HOLLY

Title PERMITTING TECH

Signature (Electronic Submission)

Date 02/10/2015

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

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

**BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD 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 ******JUN 08 2015**

Additional data for EC transaction #291110 that would not fit on the form

32. Additional remarks, continued

BHL: 1650' FNL & 990' FWL, Sec 10 T17S R32E, UL E

A revised C-102, directional plan & updated production casing and cement program are attached.

Sneed 9 Federal Com #23H

COG respectfully request approval to change production casing and cement programs as follows:

Original production casing proposal:

See COG

OLD Casing design

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Jt.	brst/clps/ten
17 1/2"	0-978' / 970	13 3/8"	48#	H-40/J-55 Hybrid	New	ST&C	1.77/1.78/7.88
12 1/4"	978'-2290'	9 5/8"	40#	J/K-55	New	LT&C	1.72/2.16/6.68
8 3/4"	2290'-6223'	7"	26#	L-80	New	LT&C	1.17/1.83/3.70
8 3/4"	6223'-6981'	5 1/2"	17#	L-80	New	LT&C	1.55/1.96/3.45
7 7/8"	6981'-11114'	5 1/2"	17#	L-80	New	LT&C	1.55/1.96/3.45

New production casing proposal:

See COG

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Coupling	Burst	Collapse	Tension
17 1/2"	0-978' / 970	13 3/8"	48#	H-40/J-55 Hybrid	New	ST&C	1.56	1.65	6.86
12 1/4"	978'-2290'	9 5/8"	40#	J/K-55	New	ST&C	1.32	2.31	6.09
8 3/4"	2290'-5879	7"	26#	L-80	New	LT&C	1.33	3.24	2.79
8 3/4"	5879'-6697	5 1/2"	17#	L-80	New	LT&C	1.33	2.61	3.19
7 7/8"	6697'-12115	5 1/2"	17#	L-80	New	LT&C	1.33	2.61	6.37

New production cement:

Single Stage:

500 psi

Interval	Hole Size	Sacks	Yield (cf/sx)	Cement wt (ppg)	Wtr Required (gal/sx)	Excess (%)	Time (hrs)
0-5897	8.75	475	2.01	12.5	11.4	34	30
5879-6697	8.75	136	1.37	14	6.5	37	12
6697-12115	7.875	1214	1.37	14	6.5	37	12

Multi-stage:

Dr tool @ 4082'

500 psi

Interval	Hole Size	Sacks	Yield (cf/sx)	Cement wt (ppg)	Wtr Required (gal/sx)	Excess (%)	Time (hrs)
0-3676	8.75	225	2.01	12.5	11.4	30	30
3676-4082	8.75	150	1.02	16.8	4	143	6
4082-5879	8.75	175	2.01	12.5	11.4	30	30
5879-6697	8.75	136	1.37	14	6.5	37	12
6697-12115	7.875	1214	1.37	14	6.5	37	12

This sundry was necessary because another ¼" mile was added to EOL.

The casing changes will help us install larger pumping equipment and L-80 has better corrosion resistance than P110.

COG OPERATING, LLC

Lea County, NM

Sneed 9 Federal Com 23H

23H

Lateral

Plan: Plan #2

Standard Planning Report

23 January, 2015

Section Distances

Sec9,T17S,R32E
SHL - Unit E
1650'FNL, 330'FWL
Sec10,T17S,R32E
PBHL - Unit E
1650'FNL, 990'FWL

COG OPERATING, LLC

Field: Lea County, NM
Site: Sneed 9 Federal Com 23H
Well: 23H
Wellbore: Lateral
Plan: Plan #2

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Sneed 9 Fed Com #23H Surface	0.00	0.00	0.00	674029.10	670397.30	32° 51' 6.34 N	103° 46' 42.49 W
Sneed 9 Fed Com #23H PBHL	6400.00	18.34	5938.10	674047.44	676335.40	32° 51' 6.20 N	103° 45' 32.88 W



Section Distances

Sec9,T17S,R32E
SHL - Unit E
1650FNL, 330'FWL
Sec10,T17S,R32E
PBHL - Unit E
1650FNL, 990'FWL

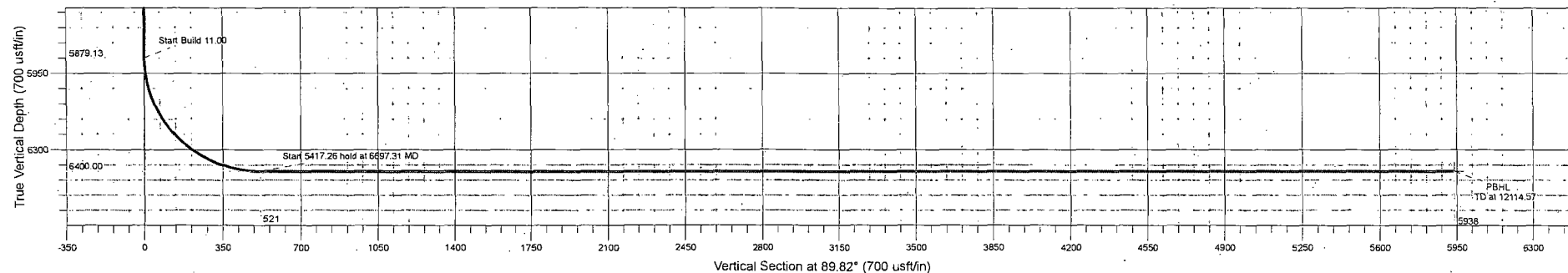
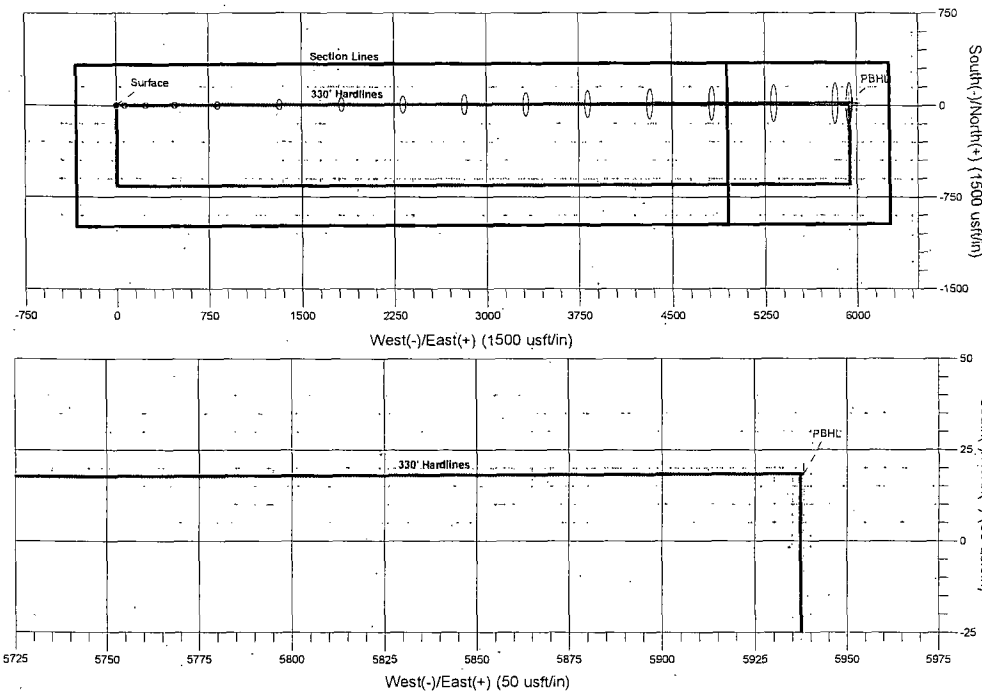
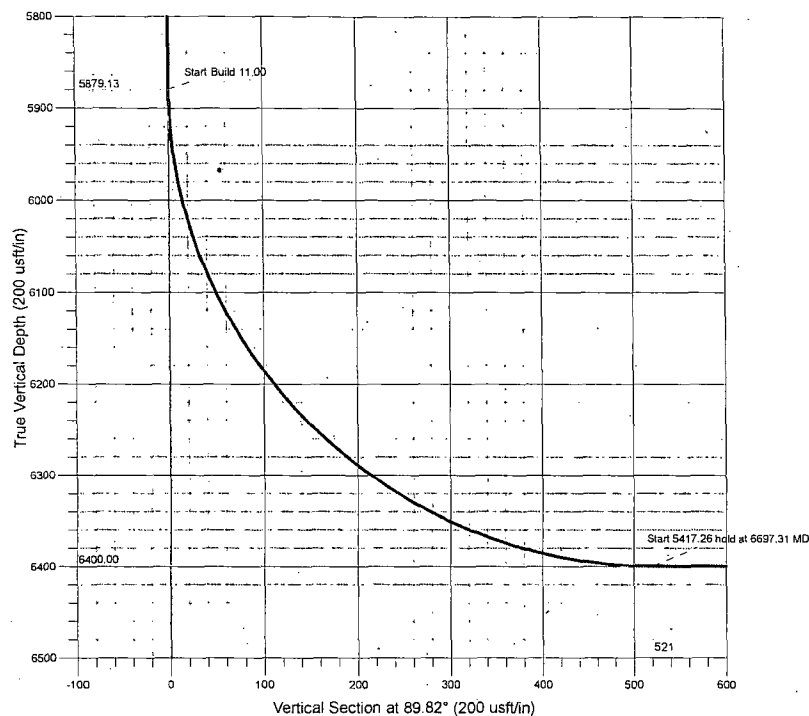
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5879.13	0.00	0.00	5879.13	0.00	0.00	0.00	0.00	0.00	
3	6697.31	90.00	89.82	6400.00	1.61	520.87	11.00	89.82	520.87	Sneed 9 Fed Com #23H PBHL
4	12114.57	90.00	89.82	6400.00	18.34	5938.10	0.00	0.00	5938.13	



Azimuths to Grid North
True North: -0.30°
Magnetic North: 7.13°

Magnetic Field
Strength: 48660.4snT
Dip Angle: 60.90°
Date: 1/18/2015
Model: HDGM



Archer

ARCHER DIRECTIONAL DRILLING SERVICES
12101 Cutten Rd. Houston, Texas 77066
Phone: 281-301-2600 Fax: 281-301-2795

Design: Plan #2 (23H/Lateral)
Created By: Keith Noack
Date: 13:41, January 23 2015

Archer

Planning Report

Database:	EDM R5000.1 MULTI	Local Co-ordinate Reference:	Well 23H
Company:	COG OPERATING, LLC	TVD Reference:	4080' GL @ 4080.00usft (GL)
Project:	Lea County, NM	MD Reference:	4080' GL @ 4080.00usft (GL)
Site:	Sneed 9 Federal Com 23H	North Reference:	Grid
Well:	23H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #2		

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:	Sneed 9 Federal Com 23H		
Site Position:		Northing:	674,029.10 usft
From:	Map	Easting:	670,397.30 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in
		Latitude:	32° 51' 6.34 N
		Longitude:	103° 46' 42.49 W
		Grid Convergence:	0.30 °

Well:	23H		
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	Easting:
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft
		Latitude:	32° 51' 6.34 N
		Longitude:	103° 46' 42.49 W
		Ground Level:	4,080.00 usft

Wellbore:	Lateral		
Magnetics:	Model Name	Sample Date	Declination
			(°)
	HDGM	1/18/2015	7.43
			Dip Angle
			(°)
			60.90
			Field Strength
			(nT)
			48,660

Design:	Plan #2		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			Direction
			(°)
			89.82

Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,879.13	0.00	0.00	5,879.13	0.00	0.00	0.00	0.00	0.00	0.00	
6,697.31	90.00	89.82	6,400.00	1.61	520.87	11.00	11.00	0.00	89.82	
12,114.57	90.00	89.82	6,400.00	18.34	5,938.10	0.00	0.00	0.00	0.00	Sneed 9 Fed Com #2

Archer

Planning Report

Database:	EDM R5000.1 MULTI	Local Co-ordinate Reference:	Well 23H
Company:	COG OPERATING, LLC	TVD Reference:	4080' GL @ 4080.00usft (GL)
Project:	Lea County, NM	MD Reference:	4080' GL @ 4080.00usft (GL)
Site:	Sneed 9 Federal Com 23H	North Reference:	Grid
Well:	23H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Archer

Planning Report

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Wellbore:	Lateral		
Design:	Plan #2		

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)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,879.13	0.00	0.00	5,879.13	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 11.00									
5,900.00	2.30	89.82	5,899.99	0.00	0.42	0.42	11.00	11.00	0.00
5,950.00	7.80	89.82	5,949.78	0.01	4.81	4.81	11.00	11.00	0.00
6,000.00	13.30	89.82	5,998.92	0.04	13.96	13.96	11.00	11.00	0.00
6,050.00	18.80	89.82	6,046.95	0.09	27.78	27.78	11.00	11.00	0.00
6,100.00	24.30	89.82	6,093.44	0.14	46.13	46.13	11.00	11.00	0.00
6,150.00	29.80	89.82	6,137.96	0.21	68.86	68.86	11.00	11.00	0.00
6,200.00	35.30	89.82	6,180.09	0.30	95.75	95.75	11.00	11.00	0.00
6,250.00	40.80	89.82	6,219.45	0.39	126.55	126.55	11.00	11.00	0.00
6,300.00	46.30	89.82	6,255.68	0.50	160.98	160.98	11.00	11.00	0.00
6,350.00	51.80	89.82	6,288.44	0.61	198.73	198.73	11.00	11.00	0.00
6,400.00	57.30	89.82	6,317.43	0.74	239.44	239.44	11.00	11.00	0.00
6,450.00	62.80	89.82	6,342.38	0.87	282.75	282.75	11.00	11.00	0.00
6,500.00	68.30	89.82	6,363.07	1.01	328.24	328.24	11.00	11.00	0.00
6,550.00	73.80	89.82	6,379.31	1.16	375.51	375.52	11.00	11.00	0.00
6,600.00	79.30	89.82	6,390.94	1.31	424.12	424.12	11.00	11.00	0.00
6,650.00	84.80	89.82	6,397.85	1.46	473.62	473.62	11.00	11.00	0.00
6,697.31	90.00	89.82	6,400.00	1.61	520.87	520.87	11.00	11.00	0.00
Start 5417.26 hold at 6697.31 MD									
6,700.00	90.00	89.82	6,400.00	1.62	523.56	523.56	0.00	0.00	0.00
6,800.00	90.00	89.82	6,400.00	1.93	623.56	623.56	0.00	0.00	0.00
6,900.00	90.00	89.82	6,400.00	2.23	723.56	723.56	0.00	0.00	0.00
7,000.00	90.00	89.82	6,400.00	2.54	823.56	823.56	0.00	0.00	0.00
7,100.00	90.00	89.82	6,400.00	2.85	923.56	923.56	0.00	0.00	0.00
7,200.00	90.00	89.82	6,400.00	3.16	1,023.55	1,023.56	0.00	0.00	0.00
7,300.00	90.00	89.82	6,400.00	3.47	1,123.55	1,123.56	0.00	0.00	0.00
7,400.00	90.00	89.82	6,400.00	3.78	1,223.55	1,223.56	0.00	0.00	0.00
7,500.00	90.00	89.82	6,400.00	4.09	1,323.55	1,323.56	0.00	0.00	0.00
7,600.00	90.00	89.82	6,400.00	4.40	1,423.55	1,423.56	0.00	0.00	0.00
7,700.00	90.00	89.82	6,400.00	4.71	1,523.55	1,523.56	0.00	0.00	0.00
7,800.00	90.00	89.82	6,400.00	5.01	1,623.55	1,623.56	0.00	0.00	0.00
7,900.00	90.00	89.82	6,400.00	5.32	1,723.55	1,723.56	0.00	0.00	0.00
8,000.00	90.00	89.82	6,400.00	5.63	1,823.55	1,823.56	0.00	0.00	0.00
8,100.00	90.00	89.82	6,400.00	5.94	1,923.55	1,923.56	0.00	0.00	0.00
8,200.00	90.00	89.82	6,400.00	6.25	2,023.55	2,023.56	0.00	0.00	0.00
8,300.00	90.00	89.82	6,400.00	6.56	2,123.55	2,123.56	0.00	0.00	0.00
8,400.00	90.00	89.82	6,400.00	6.87	2,223.55	2,223.56	0.00	0.00	0.00
8,500.00	90.00	89.82	6,400.00	7.18	2,323.55	2,323.56	0.00	0.00	0.00
8,600.00	90.00	89.82	6,400.00	7.48	2,423.55	2,423.56	0.00	0.00	0.00
8,700.00	90.00	89.82	6,400.00	7.79	2,523.55	2,523.56	0.00	0.00	0.00
8,800.00	90.00	89.82	6,400.00	8.10	2,623.55	2,623.56	0.00	0.00	0.00
8,900.00	90.00	89.82	6,400.00	8.41	2,723.55	2,723.56	0.00	0.00	0.00
9,000.00	90.00	89.82	6,400.00	8.72	2,823.55	2,823.56	0.00	0.00	0.00
9,100.00	90.00	89.82	6,400.00	9.03	2,923.55	2,923.56	0.00	0.00	0.00
9,200.00	90.00	89.82	6,400.00	9.34	3,023.55	3,023.56	0.00	0.00	0.00
9,300.00	90.00	89.82	6,400.00	9.65	3,123.54	3,123.56	0.00	0.00	0.00
9,400.00	90.00	89.82	6,400.00	9.95	3,223.54	3,223.56	0.00	0.00	0.00

Archer

Planning Report

Database:	EDM R5000.1 MULTI	Local Co-ordinate Reference:	Well 23H
Company:	COG OPERATING, LLC	TVD Reference:	4080' GL @ 4080.00usft (GL)
Project:	Lea County, NM	MD Reference:	4080' GL @ 4080.00usft (GL)
Site:	Sneed 9 Federal Com 23H	North Reference:	Grid
Well:	23H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Lateral		
Design:	Plan #2		

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)	
9,500.00	90.00	89.82	6,400.00	10.26	3,323.54	3,323.56	0.00	0.00	0.00	
9,600.00	90.00	89.82	6,400.00	10.57	3,423.54	3,423.56	0.00	0.00	0.00	
9,700.00	90.00	89.82	6,400.00	10.88	3,523.54	3,523.56	0.00	0.00	0.00	
9,800.00	90.00	89.82	6,400.00	11.19	3,623.54	3,623.56	0.00	0.00	0.00	
9,900.00	90.00	89.82	6,400.00	11.50	3,723.54	3,723.56	0.00	0.00	0.00	
10,000.00	90.00	89.82	6,400.00	11.81	3,823.54	3,823.56	0.00	0.00	0.00	
10,100.00	90.00	89.82	6,400.00	12.12	3,923.54	3,923.56	0.00	0.00	0.00	
10,200.00	90.00	89.82	6,400.00	12.43	4,023.54	4,023.56	0.00	0.00	0.00	
10,300.00	90.00	89.82	6,400.00	12.73	4,123.54	4,123.56	0.00	0.00	0.00	
10,400.00	90.00	89.82	6,400.00	13.04	4,223.54	4,223.56	0.00	0.00	0.00	
10,500.00	90.00	89.82	6,400.00	13.35	4,323.54	4,323.56	0.00	0.00	0.00	
10,600.00	90.00	89.82	6,400.00	13.66	4,423.54	4,423.56	0.00	0.00	0.00	
10,700.00	90.00	89.82	6,400.00	13.97	4,523.54	4,523.56	0.00	0.00	0.00	
10,800.00	90.00	89.82	6,400.00	14.28	4,623.54	4,623.56	0.00	0.00	0.00	
10,900.00	90.00	89.82	6,400.00	14.59	4,723.54	4,723.56	0.00	0.00	0.00	
11,000.00	90.00	89.82	6,400.00	14.90	4,823.54	4,823.56	0.00	0.00	0.00	
11,100.00	90.00	89.82	6,400.00	15.20	4,923.54	4,923.56	0.00	0.00	0.00	
11,200.00	90.00	89.82	6,400.00	15.51	5,023.54	5,023.56	0.00	0.00	0.00	
11,300.00	90.00	89.82	6,400.00	15.82	5,123.54	5,123.56	0.00	0.00	0.00	
11,400.00	90.00	89.82	6,400.00	16.13	5,223.53	5,223.56	0.00	0.00	0.00	
11,500.00	90.00	89.82	6,400.00	16.44	5,323.53	5,323.56	0.00	0.00	0.00	
11,600.00	90.00	89.82	6,400.00	16.75	5,423.53	5,423.56	0.00	0.00	0.00	
11,700.00	90.00	89.82	6,400.00	17.06	5,523.53	5,523.56	0.00	0.00	0.00	
11,800.00	90.00	89.82	6,400.00	17.37	5,623.53	5,623.56	0.00	0.00	0.00	
11,900.00	90.00	89.82	6,400.00	17.68	5,723.53	5,723.56	0.00	0.00	0.00	
12,000.00	90.00	89.82	6,400.00	17.98	5,823.53	5,823.56	0.00	0.00	0.00	
12,100.00	90.00	89.82	6,400.00	18.29	5,923.53	5,923.56	0.00	0.00	0.00	
12,114.57	90.00	89.82	6,400.00	18.34	5,938.10	5,938.13	0.00	0.00	0.00	
TD at 12114.57										

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									
Sneed 9 Fed Com #23H	0.00	0.00	0.00	0.00	0.00	674,029.10	670,397.30	32° 51' 6.34 N	103° 46' 42.49 W
- plan hits target center									
- Point									
Sneed 9 Fed Com #23H	0.00	0.00	6,400.00	18.34	5,938.10	674,047.43	676,335.40	32° 51' 6.20 N	103° 45' 32.88 W
- plan hits target center									
- Point									

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
5,879.13	5,879.13	0.00	0.00	Start Build 11.00	
6,697.31	6,400.00	1.61	520.87	Start 5417.26 hold at 6697.31 MD	
12,114.57	6,400.00	18.34	5,938.10	TD at 12114.57	