

JUN 10 2009

PM

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Artesia

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.*5. Lease Serial No.
NMNM100844
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.**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		8. Well Name and No. COMET 22 FEDERAL 3
2. Name of Operator COG OPERATING LLC Contact: PHYLLIS A EDWARDS E-Mail: pedwards@conchoresources.com		9. API Well No. 30-015-35821-00-X1
3a. Address 550 W TEXAS, STE 1300 FASKEN TOWER II MIDLAND, TX 79701	3b. Phone No. (include area code) Ph: 432-685-4340	10. Field and Pool, or Exploratory CROW FLATS
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 22 T16S R28E SWNW 1980FNL 330FWL		11. County or Parish, and State EDDY 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	
	☐ 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.)

BHL: 1980 FNL & 330 FEL, UL H, Section 22, T16S, R28E

COG Operating LLC respectfully requests permission to have the attached APD variances approved.

A copy of the plat is attached and an original plat and all other attachments will be fed ex'd
6-8-09.

Possible DHC of Abc/Wolfcomp - Proposed TVD 6640'
EIK 22 Fed 1 (30-015-31598) NWE of well - Wolfcomp 6616'
EIK 21 Fed 1 (30-015-31824) SW of well - Wolfcomp 6547'

SUBJECT TO LIKE
APPROVAL BY STATE

14. I hereby certify that the foregoing is true and correct. Electronic Submission #70608 verified by the BLM Well Information System For COG OPERATING LLC, sent to the Carlsbad Committed to AFMSS for processing by KURT SIMMONS on 06/08/2009 (09KMS1538SE)	
Name (Printed/Typed) PHYLLIS A EDWARDS	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 06/08/2009

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By WESLEY INGRAM	Title PETROLEUM ENGINEER	Date 2009 06/08/2009
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 Carlsbad

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 ****

JWR

EXHIBIT "A"

DISTRICT I
1670 N. French Dr., Hobbs, NM 88240

DISTRICT II
1901 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Bravo Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION 1220 South St. Francis Dr. Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2006

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-35821	Pool Code	Pool Name Craw Flats	Well Number A 30
Property Code 36629	Property Name COMET "22" FEDERAL		Well Number 3
OGRD No. 229137	Operator Name C.O.G. OPERATING L.L.C.		Elevation 3611'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	22	16 S	28 E		1980	NORTH	330	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	22	16 S	28 E		1980	NORTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or is a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Phyllis A. Edwards</i> Signature Date 6/8/09 Phyllis A. Edwards Printed Name Regulatory Analyst
	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. APRIL 11, 2007 Date Surveyed Signature of Gary L. Jones Professional Surveyor <i>Gary L. Jones</i> Signature Professional Surveyor 908 Certificate No. Gary L. Jones 7977 BASIN SURVEYS

ATTACHMENT TO FORM 3160-3
 COG Operating
 Comet 22 Federal #3
 SL: 1980' FNL & 330' FWL, Unit M
 BHL: 1980' FNL & 330' FEL, Unit H
 Sec 22, T16S, R28E
 Eddy County, NM

Revised 6/5/09

1. Proration Unit Spacing: 160 Acres

2. Ground Elevation: 3611'

3. Proposed Depths: **No Pilot Hole**, Horizontal TVD = **6640'**, Horizontal MD = **10971'**

4. Estimated tops of geological markers:

Quaternary	Surface
Yates	390'
Queens	1020'
San Andres	1950'
Glorietta	3370'
Abo	5400'
<u>Top Lower Abo</u>	<u>6560'</u>

5. Possible mineral bearing formations:

Water Sand	Fresh Water	150'
San Andres	Oil / Gas	1950'
Glorietta	Oil / Gas	3370'
Abo	Oil / Gas	5400'
<u>Top Lower Abo</u>	Oil / Gas	<u>6560'</u>

6. Casing Program

<u>Hole size</u>	<u>Interval</u>	<u>OD of Casing</u>	<u>Weight</u>	<u>Thread</u>	<u>Collar</u>	<u>Grade</u>
17-1/2"	0' - +/-500'	13-3/8"	<u>54.5#</u>	New	STC	<u>J/K-55</u>
Collapse sf - 2.98, Burst sf - 2.33, Tension sf - 13.42						
12 1/4"	0' - +/-1800'	9-5/8"	40#	New	STC	<u>J/K-55</u>
Collapse sf - 2.86, Burst sf - 1.42, Tension sf - 7.22						
8-3/4"	0' - <u>+/-5950'MD</u>	7"	26#	New	LTC	P-110
Collapse sf - 2.18, Burst sf - 1.53, Tension sf - 4.37						
6-1/8"	5850' - <u>+/-10971'MD</u>	4-1/2"	11.6#	New	LTC	P-110
Collapse sf - 2.47, Burst sf - 1.64, Tension sf - 4.48						

**ATTACHMENT TO FORM 3160-3
COG Operating
Comet 22 Federal #3**

Page 2 of 3

7. Cement Program

- see COA → 13 3/8" Surface Casing set at +/- 500', Circ to Surf with +/- 500 sx Class "C" w/ 2% CaCl₂, 1.35 yd.
- see COA → 9 5/8" Intermediate Casing set at +/- 1800', Circ. to Surf with +/- 600 sx 35/65 Poz "C", 2.05 yd & 200 sx Class "C" w/ 2% CaCl₂, 1.35 yd.
- see COA → 7" Production Casing set at +/- 5950' MD, Cement with +/- 500 sx. 50/50/10 "C", 2.45 yd & +/- 200 sx Class "H", 1.18 yd., Est TOC @ 200' minimum tie back into intermediate casing.
- see COA → 4 1/2" Production Liner set from +/- 5850' to +/- 10971' MD, 6590' TVD, Liner run with +/- 8 isolation Packers and Sliding sleeves in un-cemented Lateral.

8. Pressure Control Equipment:

see COA → After setting 13 3/8" casing and installing 3000 psi casing head, NU 13 5/8" 3000 psi annular BOP. Test annular BOP, casing and manifold in one single test with clear fluid to 1000 psi w/ rig pump as variance from Onshore Order #2. After setting 9 5/8" casing and installing 3000 psi casing spool, NU 3000 psi double ram BOP and 3000 psi annular BOP. Test double ram BOP and manifold to 3000# with clear fluid and annular to 1500 psi using an independent tester, this equipment will be used continuously until TD is reached. Blind rams will be operationally checked on each trip out of hole. Pipe rams will be operationally checked each 24 hour period. These checks will be noted on daily tour sheets. Other accessories to the BOP equipment include a Kelly cock and floor safety valves, choke lines and choke manifold with 3000 psi WP rating.

← see COA

9. Proposed Mud Circulating System

Interval	Mud Wt	Visc.	FL	Type Mud System
0' - 500'	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps Lime for PH.
500' - 1800'	9.1	30	NC	Cut brine mud, lime for PH and paper for seepage and sweeps.
1800' - <u>5950'</u>	9.1	29	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.
<u>5950'</u> - <u>10971'</u>	9.5	36	10	Drill horizontal section with XCD polymer / cut brine / starch.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the well site at all times.

10. Production Hole Drilling Summary:

Set 7" production casing at +/- 5950'. Drill 6-1/8" hole and kick off at +/- 6113', building curve over +/- 477' to horizontal at 6590' TVD. Drill horizontal section in an Easterly direction for +/- 4585' (total) lateral to TD at +/- 10971' MD, 6640' TVD. Run 4-1/2" production liner in open hole lateral and set isolation packers, with liner top packer @ +/- 5950' MD

ATTACHMENT TO FORM 3160-3
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Page 3 of 3

11. Auxiliary Well Control and Monitoring Equipment

- A. Kelly cock will be kept in the drill string at all times.
- B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

12. Logging, Testing and Coring Program

- A. The electric logging program will consist of GR run while drilling 6-1/8" hole from 7" shoe TD to horizontal TD. Cased hole GR/CNL will be run from 4-1/2" liner top to 9-5/8" casing shoe.
- B. Drill Stem test is not anticipated.
- C. No conventional coring is anticipated.
- D. Further testing procedures will be determined after the 4 1/2" production liner packers have been installed at TD based on drill shows and log evaluation.

13. Abnormal Conditions, Pressures, Temperatures and Potential Hazards.

No abnormal pressures or temperatures are anticipated. The estimated bottom-hole temperature at TD is 110 degrees and estimated maximum bottom-hole pressure is 2300 psig. Low levels of Hydrogen sulfide have been monitored in producing wells in the area, so H₂S may be present while drilling the well. An H₂S plan is attached to the Drilling Program. No major lost circulation zones have been reported in offsetting wells.

14. Anticipated Starting Date

Drilling operations will commence approximately on June 15, 2009 with drilling and completion operations lasting approximately 90 days

COG Operating LLC

**Eddy County
Comet 22 Federal #3
Comet 22 Federal #3
OH**

Plan: Plan #1

Pathfinder X & Y Survey Report

05 June, 2009

PATHFINDER

30.015.35821

Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: COG Operating LLC
Project: Eddy County
Site: Comet 22 Federal #3
Well: Comet 22 Federal #3
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Comet 22 Federal #3
TVD Reference: RKBtoGL-27' @ 3638.00ft (Original Well Elev)
MD Reference: RKBtoGL-27' @ 3638.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

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

Site Comet 22 Federal #3

Site Position:

From: Lat/Long

Position Uncertainty: 0.00 ft

Northing: 694,830 553 ft

Easting: 591,053 291 ft

Slot Radius: "

Latitude: 32° 54' 36.000 N

Longitude: 104° 10' 16 800 W

Grid Convergence: 0 09 °

Well Comet 22 Federal #3

Well Position +N/-S 0.00 ft

+E/-W 0.00 ft

Position Uncertainty 0.00 ft

Northing: 694,830.553 ft

Easting: 591,053.291 ft

Wellhead Elevation: ft

Latitude: 32° 54' 36 000 N

Longitude: 104° 10' 16 800 W

Ground Level: 3,611 00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	06/05/2009	8.15	60.78	49,192

Design Plan #1

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0 00	86.62

Survey Tool Program Date 06/05/2009

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	10,970.68	Plan #1 (OH)	MWD	MWD - Standard

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North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-3,638.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
100.00	0.00	0.00	100.00	-3,538.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
200.00	0.00	0.00	200.00	-3,438.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
300.00	0.00	0.00	300.00	-3,338.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
400.00	0.00	0.00	400.00	-3,238.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
500.00	0.00	0.00	500.00	-3,138.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
600.00	0.00	0.00	600.00	-3,038.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
700.00	0.00	0.00	700.00	-2,938.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
800.00	0.00	0.00	800.00	-2,838.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
900.00	0.00	0.00	900.00	-2,738.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,000.00	0.00	0.00	1,000.00	-2,638.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,100.00	0.00	0.00	1,100.00	-2,538.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,200.00	0.00	0.00	1,200.00	-2,438.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,300.00	0.00	0.00	1,300.00	-2,338.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,400.00	0.00	0.00	1,400.00	-2,238.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,500.00	0.00	0.00	1,500.00	-2,138.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,600.00	0.00	0.00	1,600.00	-2,038.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,700.00	0.00	0.00	1,700.00	-1,938.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,800.00	0.00	0.00	1,800.00	-1,838.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
1,900.00	0.00	0.00	1,900.00	-1,738.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
2,000.00	0.00	0.00	2,000.00	-1,638.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
2,100.00	0.00	0.00	2,100.00	-1,538.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
2,200.00	0.00	0.00	2,200.00	-1,438.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
2,300.00	0.00	0.00	2,300.00	-1,338.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
2,400.00	0.00	0.00	2,400.00	-1,238.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
2,500.00	0.00	0.00	2,500.00	-1,138.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
2,600.00	0.00	0.00	2,600.00	-1,038.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: COG Operating LLC
Project: Eddy County
Site: Comet 22 Federal #3
Well: Comet 22 Federal #3
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Comet 22 Federal #3
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MD Reference: RKBtoGL-27' @ 3638 00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
2,700.00	0.00	0.00	2,700.00	-938.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
2,800.00	0.00	0.00	2,800.00	-838.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
2,900.00	0.00	0.00	2,900.00	-738.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,000.00	0.00	0.00	3,000.00	-638.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,100.00	0.00	0.00	3,100.00	-538.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,200.00	0.00	0.00	3,200.00	-438.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,300.00	0.00	0.00	3,300.00	-338.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,400.00	0.00	0.00	3,400.00	-238.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,500.00	0.00	0.00	3,500.00	-138.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,600.00	0.00	0.00	3,600.00	-38.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,700.00	0.00	0.00	3,700.00	62.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,800.00	0.00	0.00	3,800.00	162.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
3,900.00	0.00	0.00	3,900.00	262.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,000.00	0.00	0.00	4,000.00	362.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,100.00	0.00	0.00	4,100.00	462.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,200.00	0.00	0.00	4,200.00	562.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,300.00	0.00	0.00	4,300.00	662.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,400.00	0.00	0.00	4,400.00	762.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,500.00	0.00	0.00	4,500.00	862.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,600.00	0.00	0.00	4,600.00	962.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,700.00	0.00	0.00	4,700.00	1,062.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,800.00	0.00	0.00	4,800.00	1,162.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
4,900.00	0.00	0.00	4,900.00	1,262.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
5,000.00	0.00	0.00	5,000.00	1,362.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
5,100.00	0.00	0.00	5,100.00	1,462.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
5,200.00	0.00	0.00	5,200.00	1,562.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
5,300.00	0.00	0.00	5,300.00	1,662.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29

Pathfinder Energy Services
Pathfinder X & Y Survey Report



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Project: Eddy County
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Wellbore: OH
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North Reference: Grid
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MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	5,400.00	1,762.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
5,500.00	0.00	0.00	5,500.00	1,862.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
5,600.00	0.00	0.00	5,600.00	1,962.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
5,700.00	0.00	0.00	5,700.00	2,062.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
5,800.00	0.00	0.00	5,800.00	2,162.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
5,900.00	0.00	0.00	5,900.00	2,262.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
6,000.00	0.00	0.00	6,000.00	2,362.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
6,100.00	0.00	0.00	6,100.00	2,462.00	0.00	0.00	0.00	0.00	694,830.55	591,053.29
6,112.57	0.00	0.00	6,112.57	2,474.57	0.00	0.00	0.00	0.00	694,830.55	591,053.29
6,125.00	1.49	86.62	6,125.00	2,487.00	0.01	0.16	0.16	12.00	694,830.56	591,053.45
6,150.00	4.49	86.62	6,149.96	2,511.96	0.09	1.46	1.47	12.00	694,830.64	591,054.75
6,175.00	7.49	86.62	6,174.82	2,536.82	0.24	4.07	4.08	12.00	694,830.79	591,057.36
6,200.00	10.49	86.62	6,199.51	2,561.51	0.47	7.97	7.98	12.00	694,831.02	591,061.26
6,225.00	13.49	86.62	6,223.96	2,585.96	0.78	13.15	13.18	12.00	694,831.33	591,066.44
6,250.00	16.49	86.62	6,248.11	2,610.11	1.16	19.61	19.64	12.00	694,831.71	591,072.90
6,275.00	19.49	86.62	6,271.89	2,633.89	1.61	27.32	27.36	12.00	694,832.16	591,080.61
6,300.00	22.49	86.62	6,295.22	2,657.22	2.14	36.25	36.32	12.00	694,832.69	591,089.55
6,325.00	25.49	86.62	6,318.06	2,680.06	2.74	46.40	46.48	12.00	694,833.29	591,099.69
6,350.00	28.49	86.62	6,340.34	2,702.34	3.41	57.73	57.83	12.00	694,833.96	591,111.02
6,375.00	31.49	86.62	6,361.99	2,723.99	4.14	70.20	70.32	12.00	694,834.70	591,123.49
6,400.00	34.49	86.62	6,382.95	2,744.95	4.94	83.79	83.93	12.00	694,835.50	591,137.08
6,425.00	37.49	86.62	6,403.18	2,765.18	5.81	98.45	98.62	12.00	694,836.36	591,151.74
6,450.00	40.49	86.62	6,422.61	2,784.61	6.74	114.15	114.35	12.00	694,837.29	591,167.44
6,475.00	43.49	86.62	6,441.18	2,803.18	7.72	130.85	131.08	12.00	694,838.27	591,184.14
6,500.00	46.49	86.62	6,458.86	2,820.86	8.76	148.49	148.75	12.00	694,839.32	591,201.78
6,525.00	49.49	86.62	6,475.59	2,837.59	9.86	167.03	167.32	12.00	694,840.41	591,220.32
6,550.00	52.49	86.62	6,491.33	2,853.33	11.00	186.42	186.75	12.00	694,841.55	591,239.71

Pathfinder Energy Services
Pathfinder X & Y Survey Report



Company: COG Operating LLC
Project: Eddy County
Site: Comet 22 Federal #3
Well: Comet 22 Federal #3
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Comet 22 Federal #3
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MD Reference: RKBtoGL-27' @ 3638 00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
6,575.00	55.49	86.62	6,506.02	2,868.02	12.19	206.61	206.97	12.00	694,842.75	591,259.90
6,600.00	58.49	86.62	6,519.64	2,881.64	13.43	227.53	227.93	12.00	694,843.98	591,280.83
6,625.00	61.49	86.62	6,532.14	2,894.14	14.70	249.14	249.58	12.00	694,845.26	591,302.43
6,650.00	64.49	86.62	6,543.49	2,905.49	16.01	271.38	271.85	12.00	694,846.57	591,324.67
6,675.00	67.49	86.62	6,553.66	2,915.66	17.36	294.17	294.68	12.00	694,847.91	591,347.46
6,700.00	70.49	86.62	6,562.62	2,924.62	18.73	317.47	318.02	12.00	694,849.29	591,370.76
6,725.00	73.49	86.62	6,570.35	2,932.35	20.13	341.20	341.79	12.00	694,850.69	591,394.49
6,750.00	76.49	86.62	6,576.83	2,938.83	21.56	365.30	365.93	12.00	694,852.11	591,418.59
6,775.00	79.49	86.62	6,582.03	2,944.03	23.00	389.71	390.38	12.00	694,853.55	591,443.00
6,800.00	82.49	86.62	6,585.94	2,947.94	24.45	414.35	415.07	12.00	694,855.00	591,467.64
6,825.00	85.49	86.62	6,588.56	2,950.56	25.92	439.17	439.93	12.00	694,856.47	591,492.46
6,850.00	88.49	86.62	6,589.87	2,951.87	27.39	464.09	464.90	12.00	694,857.94	591,517.38
6,856.74	89.30	86.62	6,590.00	2,952.00	27.78	470.81	471.63	12.00	694,858.34	591,524.10
6,900.00	89.30	86.62	6,590.53	2,952.53	30.33	514.00	514.89	0.00	694,860.88	591,567.29
7,000.00	89.30	86.62	6,591.75	2,953.75	36.22	613.82	614.88	0.00	694,866.78	591,667.11
7,100.00	89.30	86.62	6,592.97	2,954.97	42.11	713.64	714.88	0.00	694,872.67	591,766.93
7,200.00	89.30	86.62	6,594.19	2,956.19	48.00	813.45	814.87	0.00	694,878.56	591,866.75
7,300.00	89.30	86.62	6,595.41	2,957.41	53.89	913.27	914.86	0.00	694,884.45	591,966.56
7,400.00	89.30	86.62	6,596.64	2,958.64	59.78	1,013.09	1,014.85	0.00	694,890.34	592,066.38
7,500.00	89.30	86.62	6,597.86	2,959.86	65.68	1,112.91	1,114.85	0.00	694,896.23	592,166.20
7,600.00	89.30	86.62	6,599.08	2,961.08	71.57	1,212.73	1,214.84	0.00	694,902.12	592,266.02
7,700.00	89.30	86.62	6,600.30	2,962.30	77.46	1,312.55	1,314.83	0.00	694,908.01	592,365.84
7,800.00	89.30	86.62	6,601.52	2,963.52	83.35	1,412.37	1,414.82	0.00	694,913.90	592,465.66
7,900.00	89.30	86.62	6,602.74	2,964.74	89.24	1,512.19	1,514.82	0.00	694,919.79	592,565.48
8,000.00	89.30	86.62	6,603.97	2,965.97	95.13	1,612.01	1,614.81	0.00	694,925.68	592,665.30
8,100.00	89.30	86.62	6,605.19	2,967.19	101.02	1,711.82	1,714.80	0.00	694,931.57	592,765.12
8,200.00	89.30	86.62	6,606.41	2,968.41	106.91	1,811.64	1,814.79	0.00	694,937.46	592,864.93

Pathfinder Energy Services

Pathfinder X & Y Survey Report



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Design: Plan #1

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MD Reference: RKBtoGL-27' @ 3638.00ft (Original Well Elev)
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Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,300.00	89.30	86.62	6,607.63	2,969.63	112.80	1,911.46	1,914.79	0.00	694,943.35	592,964.75
8,400.00	89.30	86.62	6,608.85	2,970.85	118.69	2,011.28	2,014.78	0.00	694,949.24	593,064.57
8,500.00	89.30	86.62	6,610.07	2,972.07	124.58	2,111.10	2,114.77	0.00	694,955.13	593,164.39
8,600.00	89.30	86.62	6,611.30	2,973.30	130.47	2,210.92	2,214.76	0.00	694,961.02	593,264.21
8,700.00	89.30	86.62	6,612.52	2,974.52	136.36	2,310.74	2,314.76	0.00	694,966.91	593,364.03
8,800.00	89.30	86.62	6,613.74	2,975.74	142.25	2,410.56	2,414.75	0.00	694,972.80	593,463.85
8,900.00	89.30	86.62	6,614.96	2,976.96	148.14	2,510.38	2,514.74	0.00	694,978.70	593,563.67
9,000.00	89.30	86.62	6,616.18	2,978.18	154.03	2,610.19	2,614.74	0.00	694,984.59	593,663.48
9,100.00	89.30	86.62	6,617.41	2,979.41	159.92	2,710.01	2,714.73	0.00	694,990.48	593,763.30
9,200.00	89.30	86.62	6,618.63	2,980.63	165.81	2,809.83	2,814.72	0.00	694,996.37	593,863.12
9,300.00	89.30	86.62	6,619.85	2,981.85	171.70	2,909.65	2,914.71	0.00	695,002.26	593,962.94
9,400.00	89.30	86.62	6,621.07	2,983.07	177.59	3,009.47	3,014.71	0.00	695,008.15	594,062.76
9,500.00	89.30	86.62	6,622.29	2,984.29	183.49	3,109.29	3,114.70	0.00	695,014.04	594,162.58
9,600.00	89.30	86.62	6,623.51	2,985.51	189.38	3,209.11	3,214.69	0.00	695,019.93	594,262.40
9,700.00	89.30	86.62	6,624.74	2,986.74	195.27	3,308.93	3,314.68	0.00	695,025.82	594,362.22
9,800.00	89.30	86.62	6,625.96	2,987.96	201.16	3,408.75	3,414.68	0.00	695,031.71	594,462.04
9,900.00	89.30	86.62	6,627.18	2,989.18	207.05	3,508.56	3,514.67	0.00	695,037.60	594,561.85
10,000.00	89.30	86.62	6,628.40	2,990.40	212.94	3,608.38	3,614.66	0.00	695,043.49	594,661.67
10,100.00	89.30	86.62	6,629.62	2,991.62	218.83	3,708.20	3,714.65	0.00	695,049.38	594,761.49
10,200.00	89.30	86.62	6,630.84	2,992.84	224.72	3,808.02	3,814.65	0.00	695,055.27	594,861.31
10,300.00	89.30	86.62	6,632.07	2,994.07	230.61	3,907.84	3,914.64	0.00	695,061.16	594,961.13
10,400.00	89.30	86.62	6,633.29	2,995.29	236.50	4,007.66	4,014.63	0.00	695,067.05	595,060.95
10,500.00	89.30	86.62	6,634.51	2,996.51	242.39	4,107.48	4,114.62	0.00	695,072.94	595,160.77
10,600.00	89.30	86.62	6,635.73	2,997.73	248.28	4,207.30	4,214.62	0.00	695,078.83	595,260.59
10,700.00	89.30	86.62	6,636.95	2,998.95	254.17	4,307.12	4,314.61	0.00	695,084.72	595,360.41
10,800.00	89.30	86.62	6,638.17	3,000.17	260.06	4,406.93	4,414.60	0.00	695,090.62	595,460.22
10,900.00	89.30	86.62	6,639.40	3,001.40	265.95	4,506.75	4,514.59	0.00	695,096.51	595,560.04

Pathfinder Energy Services

Pathfinder X & Y Survey Report



Company: COG Operating LLC
Project: Eddy County
Site: Comet 22 Federal #3
Well: Comet 22 Federal #3
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Comet 22 Federal #3
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MD Reference: RKBtoGL-27' @ 3638 00ft (Original Well Elev)
North Reference: Gnd
Survey Calculation Method: Minimum Curvature
Database: Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
10,970.68	89.30	86.62	6,640.26	3,002.26	270.12	4,577.30	4,585.27	0.00	695,100.67	595,630.59

PBHL(Comet22Fed#3) - PBHL(Comet22Fed#3)

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL(Comet22Fed#3) - plan hits target - Point	0.00	0.00	6,640.00	270.12	4,577.31	695,100.669	595,630.596	32° 54' 38.600 N	104° 9' 23.100 W
LP(Comet22Fed#3) - plan hits target - Point		0.00	6,590.00	27.78	470.81	694,858.336	591,524.103	32° 54' 36.268 N	104° 10' 11.277 W

Checked By: _____	Approved By: _____	Date: _____
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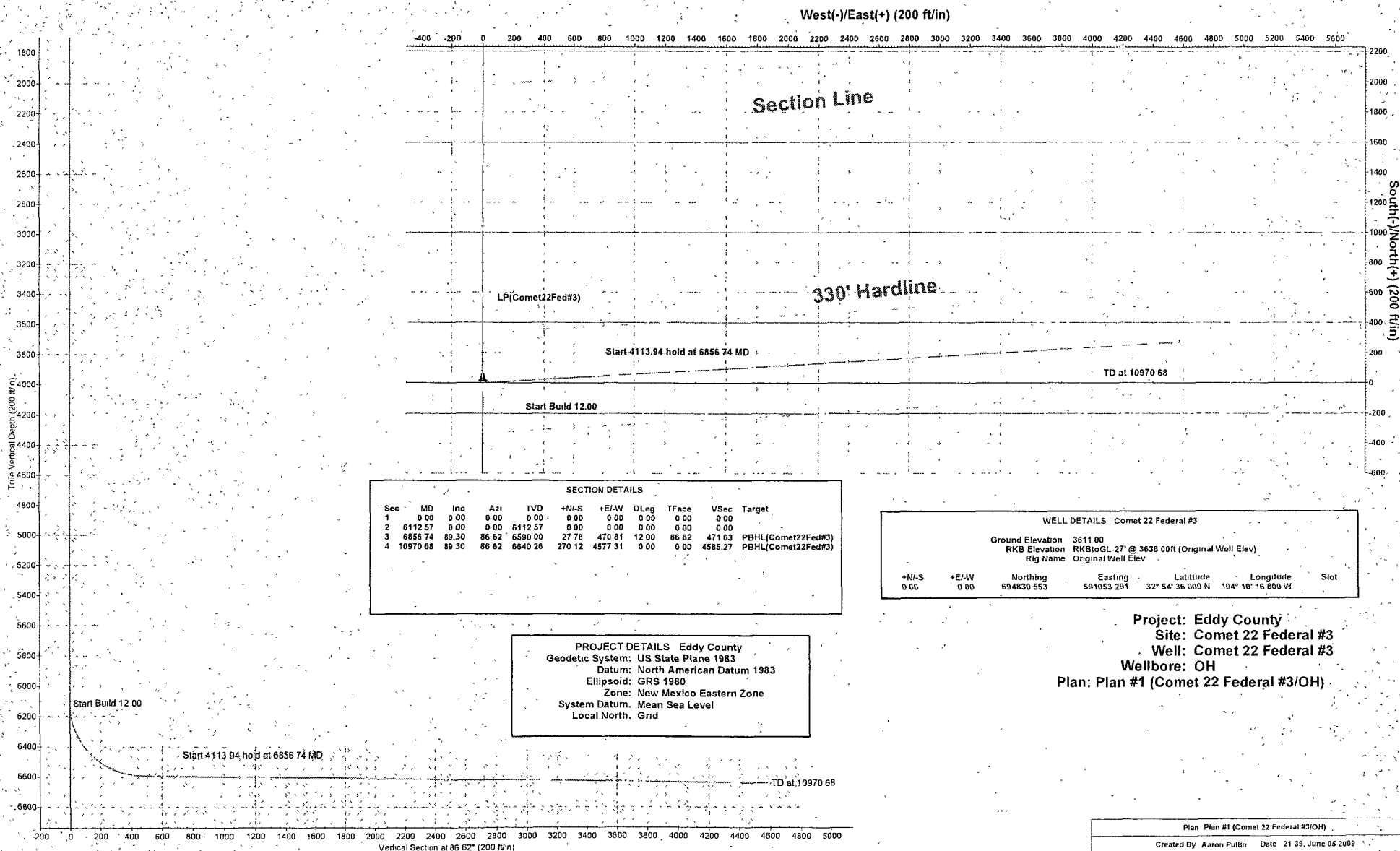
COG Operating, L.L.C.



Azimuths to Grid North
True North: -0.09°
Magnetic North: 8.06°

Magnetic Field
Strength: 49191.8snT
Dip Angle: 60.78°
Date: 06/05/2009
Model: IGRF200510

PATHFINDER
ENERGY SERVICES



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating LLC
LEASE NO.:	NMNM 100844 & NMNM 95630
WELL NAME & NO.:	Comet 22 Federal 3
SURFACE HOLE FOOTAGE:	1980' FNL & 0330' FWL
BOTTOM HOLE FOOTAGE:	1980' FNL & 0330' FEL
LOCATION:	Section 22, T. 16 S., R 28 E., NMPM
COUNTY:	Eddy County, New Mexico

Communitization Agreement

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales. Operator to supply NMOCD order or description of pool which details the vertical and horizontal extent of pool to verify that requested communitization is within an approved and established pool.

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

High cave/karst.

Possible lost circulation in the Grayburg and San Andres formations.

Possible high pressure gas bursts in the Wolfcamp – applies to Pilot Hole.

1. The 13-3/8" inch surface casing shall be set **in the Tansill formation at approximately 500 feet** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

- ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst concerns.

3. The minimum required fill of cement behind the 7 inch production casing is:

- ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

4. The minimum required fill of cement behind the 4-1/2 inch production liner is:

- ☒ No cement required – operator using liner system with packers and sliding sleeves. **Tie back of 100' for the packer liner system approved.**

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8" intermediate casing shoe shall be **3000 (3M)** psi.

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. The tests shall be done by an independent service company.
 - b. The results of the test shall be reported to the appropriate BLM office.
 - c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.
 - d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.
 - e. **Effective November 1, 2008, no variances will be granted on reduced pressure tests on the surface casing and BOP/BOPE. Onshore Order 2 requirements will be in effect.**

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

WWI 060809