

ATS-12-668

OCD Hobbs
HOBBS OCD

FORM APPROVED
OMB No. 1004-013
Expires July 31, 2010

JUL 16 2012

RECEIVED

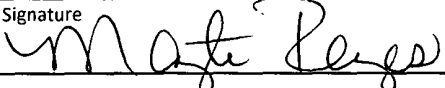
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM120910
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator COG Production LLC.		7. If Unit or CA Agreement, Name and No.
3a. Address 2208 West Main Street Artesia, NM 88210	3b. Phone No. (include area code) 575-748-6940	8. Lease Name and Well No. Pintail 3 Federal #2439347
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 330' FSL & 480' FEL Unit Letter P SESE Section 3-T265-R32E At proposed prod. Zone 330' FNL & 330' FEL Unit Letter A NENE Section 3-T265-R32E		9. API Well No. 30-025-40685
14. Distance in miles and direction from nearest town or post office* About 23 miles from Malaga		10. Field and Pool, or Exploratory Wildcat; Bone Spring 97838
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any) 330'		11. Sec., T.R.M. or Blk and Survey or Area Section 3-T265-R32E
16. No. of acres in lease 1418.62'		12. County or Parish Lea
17. Spacing Unit dedicated to this well 160		13. State New Mexico
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. 2510'		20. BLM/BIA Bond No. on file NMB006970
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3246'		22. Approximate date work will start* 7/1/2012
		23. Estimated duration 30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- | | |
|---|--|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed/Typed) Mayte Reyes	Date 5/3/2012
--	-------------------------------------	------------------

Title Regulatory Analyst	
Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) CARLSBAD FIELD OFFICE
Date JUL 12 2012	

Application approval does not warrant or certify that the applicant holds legan or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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.

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

KZ 07/17/12

Approval Subject to General Requirements
& Special Stipulations Attached

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

JUL 18 2012

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

Date: May 3, 2012

Lease #: SHL: NMNM120910
Pintail 3 Federal #2H

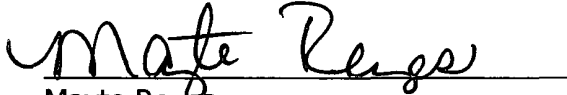
Legal Description: Sec. 3– T26S – R32E
Lea County, New Mexico

Formation(s): LOWER AVALON SHALE

Bond Coverage: Statewide

BLM Bond File #: NMB006970

COG PRODUCTION LLC

A handwritten signature in black ink, appearing to read "Mayte Reyes", is written over a horizontal line.

Mayte Reyes
Regulatory Analyst

COG Production LLC
DRILLING AND OPERATIONS PROGRAM
Pintail 3 Federal #2H
SHL: 330' FSL & 480' FEL
BHL: 330' FNL & 330' FEL
Section 3 T26S R32E
Lea County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill subject well, COG Production LLC submits the following eleven items of pertinent information in accordance with BLM requirements.

1. Geological surface formation: Permian
2. The estimated tops of geologic markers & estimated depths at which anticipated water, oil or gas formations are expected to be encountered are as follows:

Fresh Water	~ 150'	
Rustler	803'	
Top of Salt	1243'	
Base of Salt	4337'	
Delaware	4554'	Oil
Bone Spring	8713'	Oil
TD TVD	9530'	
TD MD	14,015'	

No other formations are expected to give up oil, gas or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 13-3/8" casing at ~~835'~~ and circulating cement back to surface. All intervals will be isolated by setting 5 1/2" casing to total depth and tying back cement to a minimum of 500' into 9-5/8" csg.

3. Proposed Casing Program: All casing is new and API approved

Hole Size	Depths <i>see COA</i>	Section	OD Casing	New/Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0' - 835' 915'	Surface	13 3/8"	New	54.5#	STC	J-55	1.125	1.125	1.6
12 1/4"	0' - 3500'	Intrmd	9 5/8"	New	36#	BTC	J-55	1.125	1.125	1.6
12 1/4"	3500' - 4450'	Intrmd	9 5/8"	New	40#	BTC	J-55	1.125	1.125	1.6
7 7/8"	0' - 14,015'	Production Curve & Lateral	5 1/2"	New	17#	LTC	P-110	1.125	1.125	1.6

- While running all casing strings, the pipe will be kept a minimum of 1/3 full at all times to avoid approaching the collapse pressure of casing.

4. Proposed Cement Program

- a. 13-3/8" Surface
- Lead: 350 sx Class C + 4% Gel + 2% CaCl₂
(13.5 ppg / 1.75 cuft/sx)
- Tail: 250 sx Class C + 2% CaCl₂
(14.8 ppg / 1.35 cuft/sx)
- **Calculated w/50% excess on OH volumes
- b. 9 5/8" Intermediate
- Lead: 850 sx Class C + 4% Gel
(13.5 ppg / 1.75 cuft/sx)
- Tail: 250 sx Class C + 1% CaCl₂
(14.8 ppg / 1.35 cuft/sx)
- **Calculated w/35% excess on OH volumes
- d. 5 1/2" Production
- Lead: 900 sx 50:50:10 H + Salt+Gilsonite+CFR-3+ HR601
(11.8 ppg / 2.5 cuft/sx)
- Tail: 950 sx 50:50:2 H +Salt+GasStop +HR601 +CFR-3
(14.4 ppg / 1.25 cuft/sx)
- **Calculated w/35% excess on OH volumes
- The above cement volumes could be revised pending the caliper measurement from the open hole logs.
 - The 9-5/8" intermediate string is designed to circulate to surface.
 - The production string will at least tie back 500' into 9-5/8" shoe (above slurry volumes are design to circulate to surface).

5. Minimum Specifications for Pressure Control:

Nipple up on 13 3/8 with annular preventer tested to 50% of rating working pressure by independent tester and the rest of the 2M system tested to 2000 psi.

Nipple up on 9 5/8 with 3M system tested 3000 psi to by independent tester.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. A 2" kill line and a minimum 3" choke line will be included in the drilling spool located below the ram-type BOP. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold with 3000 psi WP rating.

6. Estimated BHP:

Lateral TD = 4150 psi

7. Mud Program: The applicable depths and properties of this system are as follows:

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' - 835' 920	Fresh Water	8.4	29	N.C.
835' - 4450'	Brine	10	29	N.C.
4450' - 14,015' (Lateral)	Cut Brine	8.9 - 9.2	29	N.C.

The necessary mud products for weight addition and fluid loss control will be on location at all times.

8. Auxiliary Well Control and Monitoring Equipment:

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

9. Testing, Logging and Coring Program: *See CDA*

- a. Drill stem tests will be based on geological sample shows.
- b. If open hole electrical logging is preformed, the program will be:
 - i. Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
 - ii. Total Depth to Surface: Compensated Neutron with Gamma Ray
 - iii. No coring program is planned
 - iv. Additional testing will be initiated subsequent to setting the 5 1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

10. Potential Hazards:

- a. No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. No H₂S is anticipated to be encountered.

11. Anticipated starting date and Duration of Operations:

- a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.



COG Operating LLC

Lea County(NAD27)

Pintail 3 Federal

#2H

OH

Plan: Plan #1

Pathfinder X & Y Report

13 April, 2012



A Schlumberger Company



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Pintail 3 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 20.6' @ 3266.6usft (Original Well Elev)
MD Reference: KB = 20.6' @ 3266.6usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project	Lea County(NAD27)		
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:	Pintail 3 Federal		
Site Position:		Northing: 388,317.300 usft	Latitude: 32.066
From: Map		Easting: 710,031.500 usft	Longitude: -103.655
Position Uncertainty:	0.0 usft	Slot Radius: 13-3/16 "	Grid Convergence: 0.36 °

Well:	#2H		
Well Position	+N/-S 0.0 usft	Northing: 388,317.300 usft	Latitude: 32.066
	+E/-W 0.0 usft	Easting: 710,031.500 usft	Longitude: -103.655
Position Uncertainty	0.0 usft	Wellhead Elevation: usft	Ground Level: 3,246.0 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF200510	4/13/2012	7.50
			Dip Angle (°)
			60.03
			Field Strength (nT)
			48,470

Design	Plan #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			1.30

Survey Tool Program	Date 4/13/2012		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
0.0	14,015.4	Plan #1 (OH)	Description



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

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Planned Survey:											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0.0	0.00	0.00	0.0	-3,266.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
100.0	0.00	0.00	100.0	-3,166.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
200.0	0.00	0.00	200.0	-3,066.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
300.0	0.00	0.00	300.0	-2,966.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
400.0	0.00	0.00	400.0	-2,866.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
500.0	0.00	0.00	500.0	-2,766.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
600.0	0.00	0.00	600.0	-2,666.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
700.0	0.00	0.00	700.0	-2,566.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
800.0	0.00	0.00	800.0	-2,466.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
900.0	0.00	0.00	900.0	-2,366.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,000.0	0.00	0.00	1,000.0	-2,266.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,100.0	0.00	0.00	1,100.0	-2,166.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,200.0	0.00	0.00	1,200.0	-2,066.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,300.0	0.00	0.00	1,300.0	-1,966.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,400.0	0.00	0.00	1,400.0	-1,866.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,500.0	0.00	0.00	1,500.0	-1,766.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,600.0	0.00	0.00	1,600.0	-1,666.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,700.0	0.00	0.00	1,700.0	-1,566.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,800.0	0.00	0.00	1,800.0	-1,466.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
1,900.0	0.00	0.00	1,900.0	-1,366.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
2,000.0	0.00	0.00	2,000.0	-1,266.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
2,100.0	0.00	0.00	2,100.0	-1,166.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
2,200.0	0.00	0.00	2,200.0	-1,066.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
2,300.0	0.00	0.00	2,300.0	-966.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
2,400.0	0.00	0.00	2,400.0	-866.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
2,500.0	0.00	0.00	2,500.0	-766.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
2,600.0	0.00	0.00	2,600.0	-666.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	



Pathfinder
Pathfinder X & Y Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Pintail 3 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 20.6' @ 3266.6usft (Original Well Elev)
MD Reference: KB = 20.6' @ 3266.6usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
2,700.0	0.00	0.00	2,700.0	-566.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
2,800.0	0.00	0.00	2,800.0	-466.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
2,900.0	0.00	0.00	2,900.0	-366.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,000.0	0.00	0.00	3,000.0	-266.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,100.0	0.00	0.00	3,100.0	-166.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,200.0	0.00	0.00	3,200.0	-66.6	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,300.0	0.00	0.00	3,300.0	33.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,400.0	0.00	0.00	3,400.0	133.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,500.0	0.00	0.00	3,500.0	233.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,600.0	0.00	0.00	3,600.0	333.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,700.0	0.00	0.00	3,700.0	433.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,800.0	0.00	0.00	3,800.0	533.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
3,900.0	0.00	0.00	3,900.0	633.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,000.0	0.00	0.00	4,000.0	733.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,100.0	0.00	0.00	4,100.0	833.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,200.0	0.00	0.00	4,200.0	933.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,300.0	0.00	0.00	4,300.0	1,033.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,400.0	0.00	0.00	4,400.0	1,133.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,500.0	0.00	0.00	4,500.0	1,233.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,600.0	0.00	0.00	4,600.0	1,333.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,700.0	0.00	0.00	4,700.0	1,433.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,800.0	0.00	0.00	4,800.0	1,533.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
4,900.0	0.00	0.00	4,900.0	1,633.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
5,000.0	0.00	0.00	5,000.0	1,733.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
5,100.0	0.00	0.00	5,100.0	1,833.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
5,200.0	0.00	0.00	5,200.0	1,933.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
5,300.0	0.00	0.00	5,300.0	2,033.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	



Pathfinder Pathfinder X & Y Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Pintail 3 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

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

Well #2H
KB = 20.6' @ 3266.6usft (Original Well Elev)
KB = 20 6' @ 3266.6usft (Original Well Elev)
Grid
Minimum Curvature
EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
5,400.0	0.00	0 00	5,400.0	2,133.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
5,500.0	0.00	0.00	5,500.0	2,233.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
5,600.0	0.00	0.00	5,600.0	2,333.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
5,700.0	0.00	0.00	5,700.0	2,433.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
5,800.0	0.00	0.00	5,800.0	2,533.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
5,900.0	0.00	0.00	5,900.0	2,633.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,000.0	0.00	0.00	6,000.0	2,733.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,100.0	0.00	0.00	6,100.0	2,833.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,200.0	0.00	0.00	6,200.0	2,933.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,300.0	0.00	0.00	6,300.0	3,033.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,400.0	0.00	0.00	6,400.0	3,133.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,500.0	0.00	0.00	6,500.0	3,233.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,600.0	0.00	0.00	6,600.0	3,333.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,700.0	0.00	0.00	6,700.0	3,433.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,800.0	0.00	0.00	6,800.0	3,533.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
6,900.0	0.00	0.00	6,900.0	3,633.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,000.0	0.00	0.00	7,000.0	3,733.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,100.0	0.00	0.00	7,100.0	3,833.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,200.0	0.00	0.00	7,200.0	3,933.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,300.0	0.00	0.00	7,300.0	4,033.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,400.0	0.00	0.00	7,400.0	4,133.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,500.0	0.00	0.00	7,500.0	4,233.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,600.0	0.00	0.00	7,600.0	4,333.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,700.0	0.00	0.00	7,700.0	4,433.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,800.0	0.00	0.00	7,800.0	4,533.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
7,900.0	0.00	0.00	7,900.0	4,633.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	
8,000.0	0.00	0.00	8,000.0	4,733.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50	



Pathfinder
Pathfinder X & Y Report



Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Pintail 3 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

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

Well #2H
KB = 20.6' @ 3266.6usft (Original Well Elev)
KB = 20.6' @ 3266.6usft (Original Well Elev)
Grid
Minimum Curvature
EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (%)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,100.0	0.00	0.00	8,100.0	4,833.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
8,200.0	0.00	0.00	8,200.0	4,933.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
8,300.0	0.00	0.00	8,300.0	5,033.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
8,400.0	0.00	0.00	8,400.0	5,133.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
8,500.0	0.00	0.00	8,500.0	5,233.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
8,600.0	0.00	0.00	8,600.0	5,333.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
8,700.0	0.00	0.00	8,700.0	5,433.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
8,800.0	0.00	0.00	8,800.0	5,533.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
8,900.0	0.00	0.00	8,900.0	5,633.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
9,000.0	0.00	0.00	9,000.0	5,733.4	0.0	0.0	0.0	0.00	388,317.30	710,031.50
9,052.5	0.00	0.00	9,052.5	5,785.9	0.0	0.0	0.0	0.00	388,317.30	710,031.50
9,075.0	2.70	1.30	9,075.0	5,808.4	0.5	0.0	0.5	12.00	388,317.83	710,031.51
9,100.0	5.70	1.30	9,099.9	5,833.3	2.4	0.1	2.4	12.00	388,319.66	710,031.55
9,125.0	8.70	1.30	9,124.7	5,858.1	5.5	0.1	5.5	12.00	388,322.79	710,031.62
9,150.0	11.70	1.30	9,149.3	5,882.7	9.9	0.2	9.9	12.00	388,327.22	710,031.72
9,175.0	14.70	1.30	9,173.7	5,907.1	15.6	0.4	15.6	12.00	388,332.92	710,031.85
9,200.0	17.70	1.30	9,197.7	5,931.1	22.6	0.5	22.6	12.00	388,339.90	710,032.01
9,225.0	20.70	1.30	9,221.3	5,954.7	30.8	0.7	30.8	12.00	388,348.12	710,032.20
9,250.0	23.70	1.30	9,244.4	5,977.8	40.3	0.9	40.3	12.00	388,357.56	710,032.41
9,275.0	26.70	1.30	9,267.0	6,000.4	50.9	1.2	50.9	12.00	388,368.20	710,032.65
9,300.0	29.70	1.30	9,289.1	6,022.5	62.7	1.4	62.7	12.00	388,380.01	710,032.92
9,325.0	32.70	1.30	9,310.4	6,043.8	75.7	1.7	75.7	12.00	388,392.95	710,033.21
9,350.0	35.70	1.30	9,331.1	6,064.5	89.7	2.0	89.7	12.00	388,407.00	710,033.53
9,375.0	38.70	1.30	9,351.0	6,084.4	104.8	2.4	104.8	12.00	388,422.11	710,033.87
9,400.0	41.70	1.30	9,370.1	6,103.5	120.9	2.7	121.0	12.00	388,438.24	710,034.24
9,425.0	44.70	1.30	9,388.3	6,121.7	138.0	3.1	138.1	12.00	388,455.35	710,034.62
9,450.0	47.70	1.30	9,405.6	6,139.0	156.1	3.5	156.1	12.00	388,473.39	710,035.03



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Pintail 3 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 20.6' @ 3266.6usft (Original Well Elev)
MD Reference: KB = 20.6' @ 3266 6usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc. (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
9,475.0	50.70	1.30	9,422.0	6,155.4	175.0	4.0	175.0	12.00	388,492.30	710,035.46	
9,500.0	53.70	1.30	9,437.3	6,170.7	194.7	4.4	194.8	12.00	388,512.05	710,035.91	
9,525.0	56.70	1.30	9,451.6	6,185.0	215.3	4.9	215.3	12.00	388,532.57	710,036.37	
9,550.0	59.70	1.30	9,464.7	6,198.1	236.5	5.4	236.6	12.00	388,553.81	710,036.85	
9,575.0	62.70	1.30	9,476.8	6,210.2	258.4	5.8	258.5	12.00	388,575.71	710,037.35	
9,600.0	65.70	1.30	9,487.7	6,221.1	280.9	6.4	281.0	12.00	388,598.21	710,037.86	
9,625.0	68.70	1.30	9,497.3	6,230.7	303.9	6.9	304.0	12.00	388,621.25	710,038.38	
9,650.0	71.70	1.30	9,505.8	6,239.2	327.5	7.4	327.5	12.00	388,644.76	710,038.91	
9,675.0	74.70	1.30	9,513.0	6,246.4	351.4	8.0	351.5	12.00	388,668.68	710,039.45	
9,700.0	77.70	1.30	9,519.0	6,252.4	375.7	8.5	375.8	12.00	388,692.95	710,040.00	
9,725.0	80.70	1.30	9,523.7	6,257.1	400.2	9.1	400.3	12.00	388,717.50	710,040.56	
9,750.0	83.70	1.30	9,527.1	6,260.5	425.0	9.6	425.1	12.00	388,742.26	710,041.12	
9,775.0	86.70	1.30	9,529.2	6,262.6	449.9	10.2	450.0	12.00	388,767.16	710,041.68	
9,802.5	90.00	1.30	9,530.0	6,263.4	477.3	10.8	477.5	12.00	388,794.64	710,042.30	
9,900.0	90.00	1.30	9,530.0	6,263.4	574.8	13.0	575.0	0.00	388,892.12	710,044.51	
10,000.0	90.00	1.30	9,530.0	6,263.4	674.8	15.3	675.0	0.00	388,992.09	710,046.77	
10,100.0	90.00	1.30	9,530.0	6,263.4	774.8	17.5	775.0	0.00	389,092.07	710,049.03	
10,200.0	90.00	1.30	9,530.0	6,263.4	874.7	19.8	875.0	0.00	389,192.04	710,051.29	
10,300.0	90.00	1.30	9,530.0	6,263.4	974.7	22.1	975.0	0.00	389,292.02	710,053.55	
10,400.0	90.00	1.30	9,530.0	6,263.4	1,074.7	24.3	1,075.0	0.00	389,391.99	710,055.82	
10,500.0	90.00	1.30	9,530.0	6,263.4	1,174.7	26.6	1,175.0	0.00	389,491.96	710,058.08	
10,600.0	90.00	1.30	9,530.0	6,263.4	1,274.6	28.8	1,275.0	0.00	389,591.94	710,060.34	
10,700.0	90.00	1.30	9,530.0	6,263.4	1,374.6	31.1	1,375.0	0.00	389,691.91	710,062.60	
10,800.0	90.00	1.30	9,530.0	6,263.4	1,474.6	33.4	1,475.0	0.00	389,791.89	710,064.86	
10,900.0	90.00	1.30	9,530.0	6,263.4	1,574.6	35.6	1,575.0	0.00	389,891.86	710,067.13	
11,000.0	90.00	1.30	9,530.0	6,263.4	1,674.5	37.9	1,675.0	0.00	389,991.84	710,069.39	
11,100.0	90.00	1.30	9,530.0	6,263.4	1,774.5	40.2	1,775.0	0.00	390,091.81	710,071.65	



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Pintail 3 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 20.6' @ 3266.6usft (Original Well Elev)
MD Reference: KB = 20.6' @ 3266.6usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
11,200.0	90.00	1.30	9,530.0	6,263.4	1,874.5	42.4	1,875.0	0.00	390,191.79	710,073.91	
11,300.0	90.00	1.30	9,530.0	6,263.4	1,974.5	44.7	1,975.0	0.00	390,291.76	710,076.18	
11,400.0	90.00	1.30	9,530.0	6,263.4	2,074.4	46.9	2,075.0	0.00	390,391.73	710,078.44	
11,500.0	90.00	1.30	9,530.0	6,263.4	2,174.4	49.2	2,175.0	0.00	390,491.71	710,080.70	
11,600.0	90.00	1.30	9,530.0	6,263.4	2,274.4	51.5	2,275.0	0.00	390,591.68	710,082.96	
11,700.0	90.00	1.30	9,530.0	6,263.4	2,374.4	53.7	2,375.0	0.00	390,691.66	710,085.22	
11,800.0	90.00	1.30	9,530.0	6,263.4	2,474.3	56.0	2,475.0	0.00	390,791.63	710,087.49	
11,900.0	90.00	1.30	9,530.0	6,263.4	2,574.3	58.2	2,575.0	0.00	390,891.61	710,089.75	
12,000.0	90.00	1.30	9,530.0	6,263.4	2,674.3	60.5	2,675.0	0.00	390,991.58	710,092.01	
12,100.0	90.00	1.30	9,530.0	6,263.4	2,774.3	62.8	2,775.0	0.00	391,091.55	710,094.27	
12,200.0	90.00	1.30	9,530.0	6,263.4	2,874.2	65.0	2,875.0	0.00	391,191.53	710,096.53	
12,300.0	90.00	1.30	9,530.0	6,263.4	2,974.2	67.3	2,975.0	0.00	391,291.50	710,098.80	
12,400.0	90.00	1.30	9,530.0	6,263.4	3,074.2	69.6	3,075.0	0.00	391,391.48	710,101.06	
12,500.0	90.00	1.30	9,530.0	6,263.4	3,174.2	71.8	3,175.0	0.00	391,491.45	710,103.32	
12,600.0	90.00	1.30	9,530.0	6,263.4	3,274.1	74.1	3,275.0	0.00	391,591.43	710,105.58	
12,700.0	90.00	1.30	9,530.0	6,263.4	3,374.1	76.3	3,375.0	0.00	391,691.40	710,107.84	
12,800.0	90.00	1.30	9,530.0	6,263.4	3,474.1	78.6	3,475.0	0.00	391,791.38	710,110.11	
12,900.0	90.00	1.30	9,530.0	6,263.4	3,574.1	80.9	3,575.0	0.00	391,891.35	710,112.37	
13,000.0	90.00	1.30	9,530.0	6,263.4	3,674.0	83.1	3,675.0	0.00	391,991.32	710,114.63	
13,100.0	90.00	1.30	9,530.0	6,263.4	3,774.0	85.4	3,775.0	0.00	392,091.30	710,116.89	
13,200.0	90.00	1.30	9,530.0	6,263.4	3,874.0	87.7	3,875.0	0.00	392,191.27	710,119.15	
13,300.0	90.00	1.30	9,530.0	6,263.4	3,973.9	89.9	3,975.0	0.00	392,291.25	710,121.42	
13,400.0	90.00	1.30	9,530.0	6,263.4	4,073.9	92.2	4,075.0	0.00	392,391.22	710,123.68	
13,500.0	90.00	1.30	9,530.0	6,263.4	4,173.9	94.4	4,175.0	0.00	392,491.20	710,125.94	
13,600.0	90.00	1.30	9,530.0	6,263.4	4,273.9	96.7	4,275.0	0.00	392,591.17	710,128.20	
13,700.0	90.00	1.30	9,530.0	6,263.4	4,373.8	99.0	4,375.0	0.00	392,691.15	710,130.46	
13,800.0	90.00	1.30	9,530.0	6,263.4	4,473.8	101.2	4,475.0	0.00	392,791.12	710,132.73	



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Lea County(NAD27)
Site: Pintail 3 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 20.6' @ 3266.6usft (Original Well Elev)
MD Reference: KB = 20.6' @ 3266.6usft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
13,900.0	90.00	1.30	9,530.0	6,263.4	4,573.8	103.5	4,575.0	0.00	392,891.09	710,134.99
14,000.0	90.00	1.30	9,530.0	6,263.4	4,673.8	105.8	4,675.0	0.00	392,991.07	710,137.25
14,015.4	90.00	1.30	9,530.0	6,263.4	4,689.2	106.1	4,690.4	0.00	393,006.50	710,137.60

Checked By: _____ Approved By: _____ Date: _____



Project: Lea County(NAD27)
Site: Pintail 3 Federal
Well: #2H
Wellbore: OH
Plan: Plan #1 (#2H/OH)



Azimuths to Grid North
True North: -0.36°
Magnetic North: 7.14°

Magnetic Field
Strength: 48470.2snT
Dip Angle: 60.03°
Date: 4/13/2012
Model: IGRF200510



A Schlumberger Company

PROJECT DETAILS: Lea County(NAD27)
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1886
Zone: New Mexico East 3001
System Datum: Mean Sea Level
Local North: Grid

WELL DETAILS #2H

Ground Elevation: 3246.0
RKB Elevation: KB = 20.6' @ 3266.6usft (Original Well Elev)
Rig Name: Original Well Elev

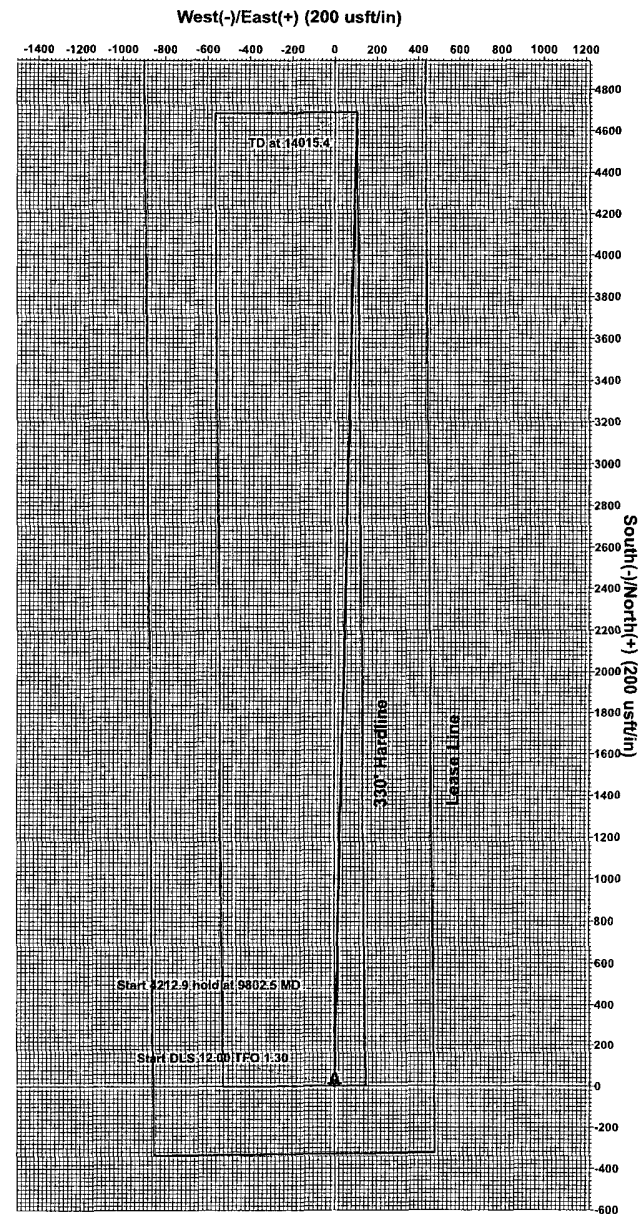
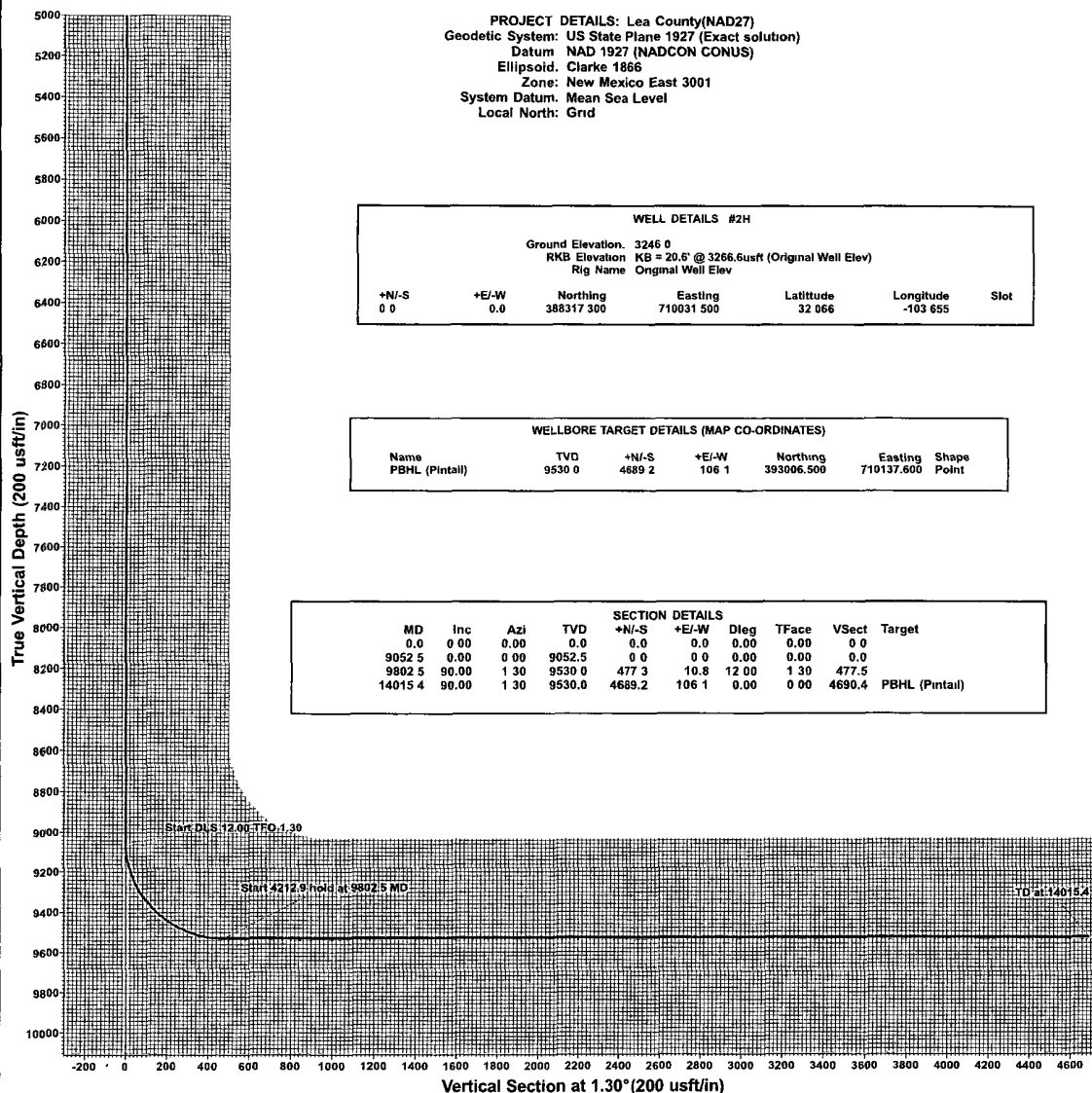
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	388317.300	710031.500	32.066	-103.655	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL (Pintail)	9530.0	4689.2	106.1	393006.500	710137.600	Point

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
9052.5	0.00	0.00	9052.5	0.0	0.0	0.00	0.00	0.0	
9802.5	90.00	1.30	9530.0	477.3	10.8	12.00	1.30	477.5	
14015.4	90.00	1.30	9530.0	4689.2	106.1	0.00	0.00	4690.4	PBHL (Pintail)

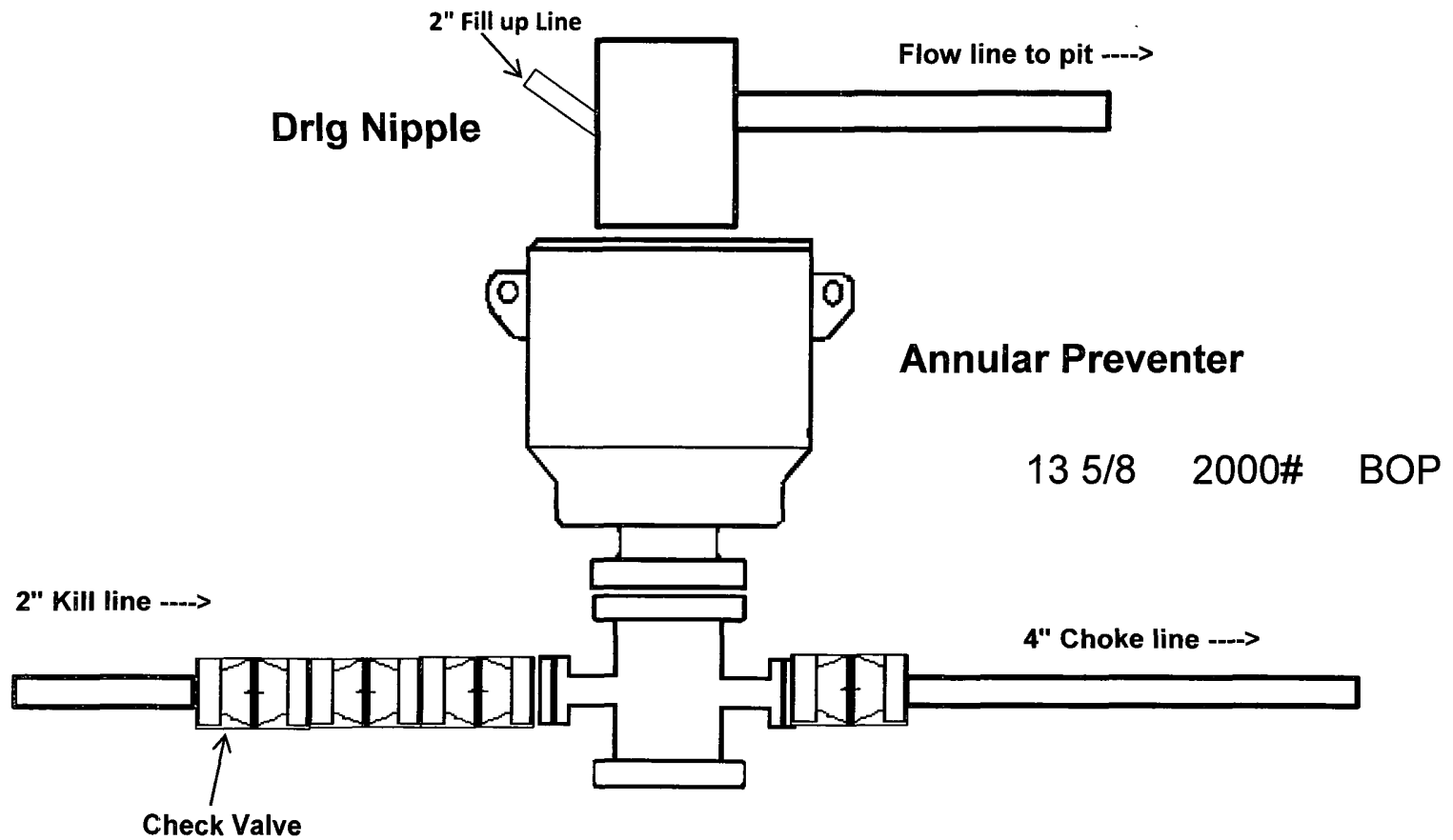


Plan: Plan #1 (#2H/OH)

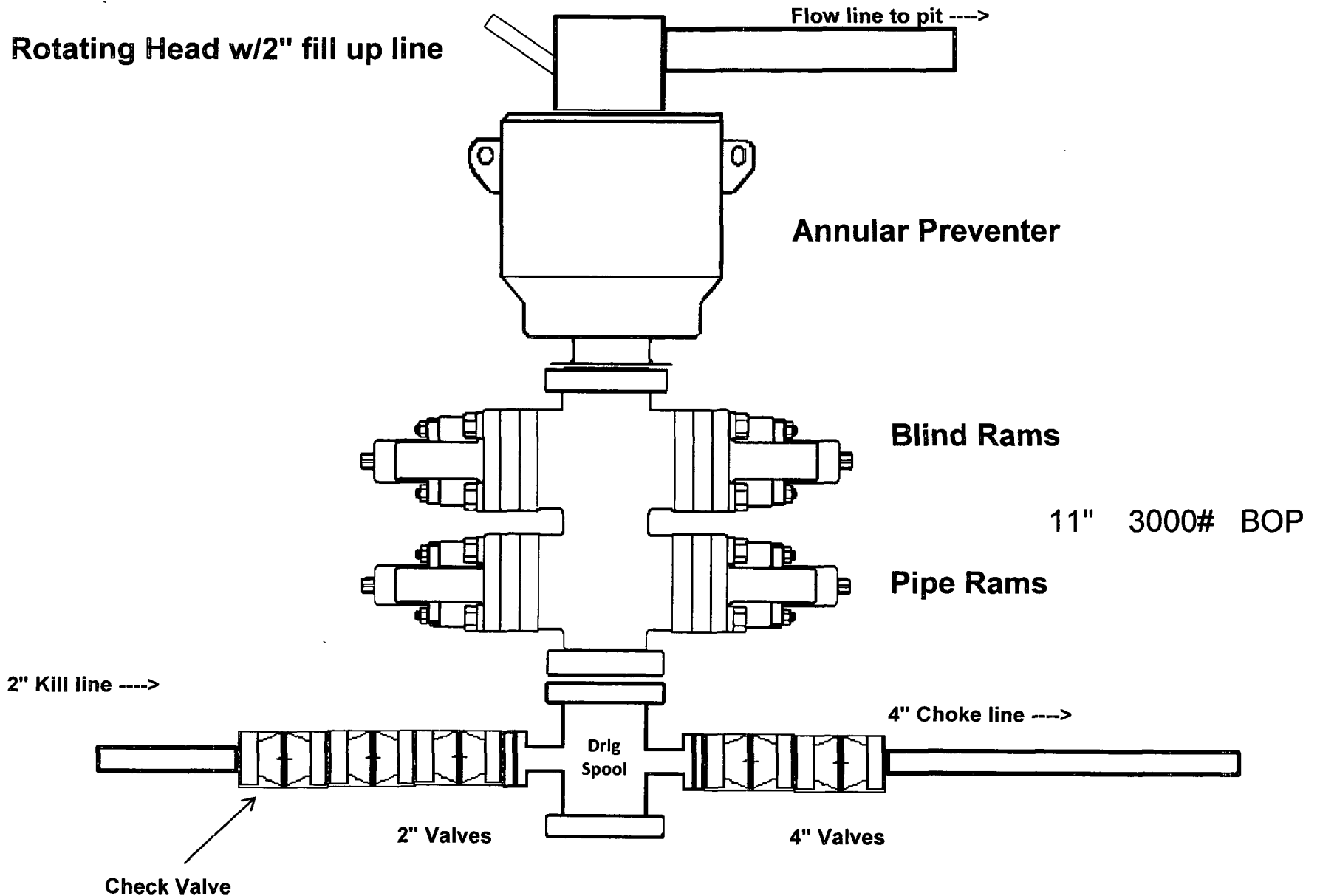
Created By: Michael Trout Date: 10/41, April 13 2012

Checked: _____ Date: _____

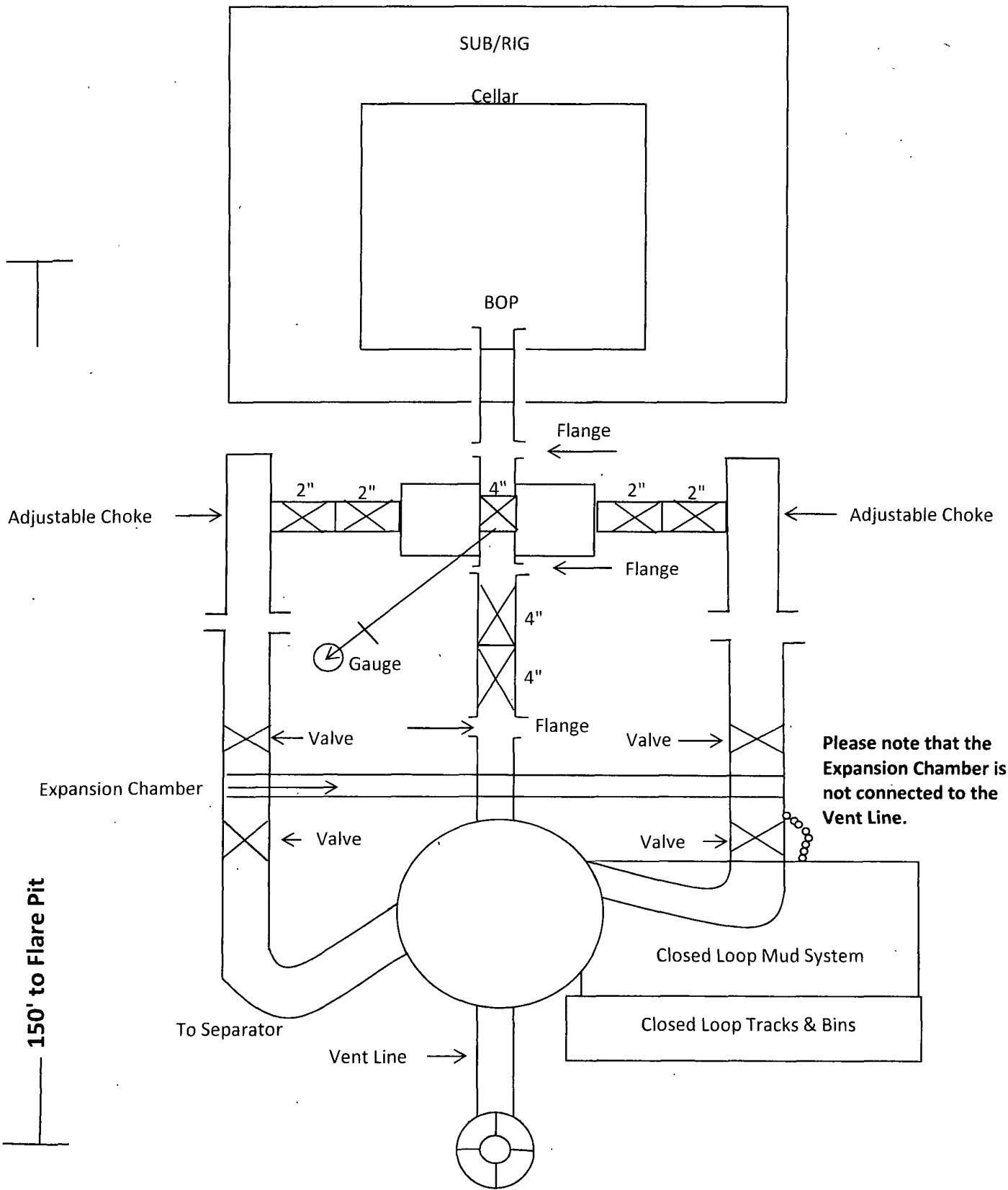
2,000 psi BOP Schematic



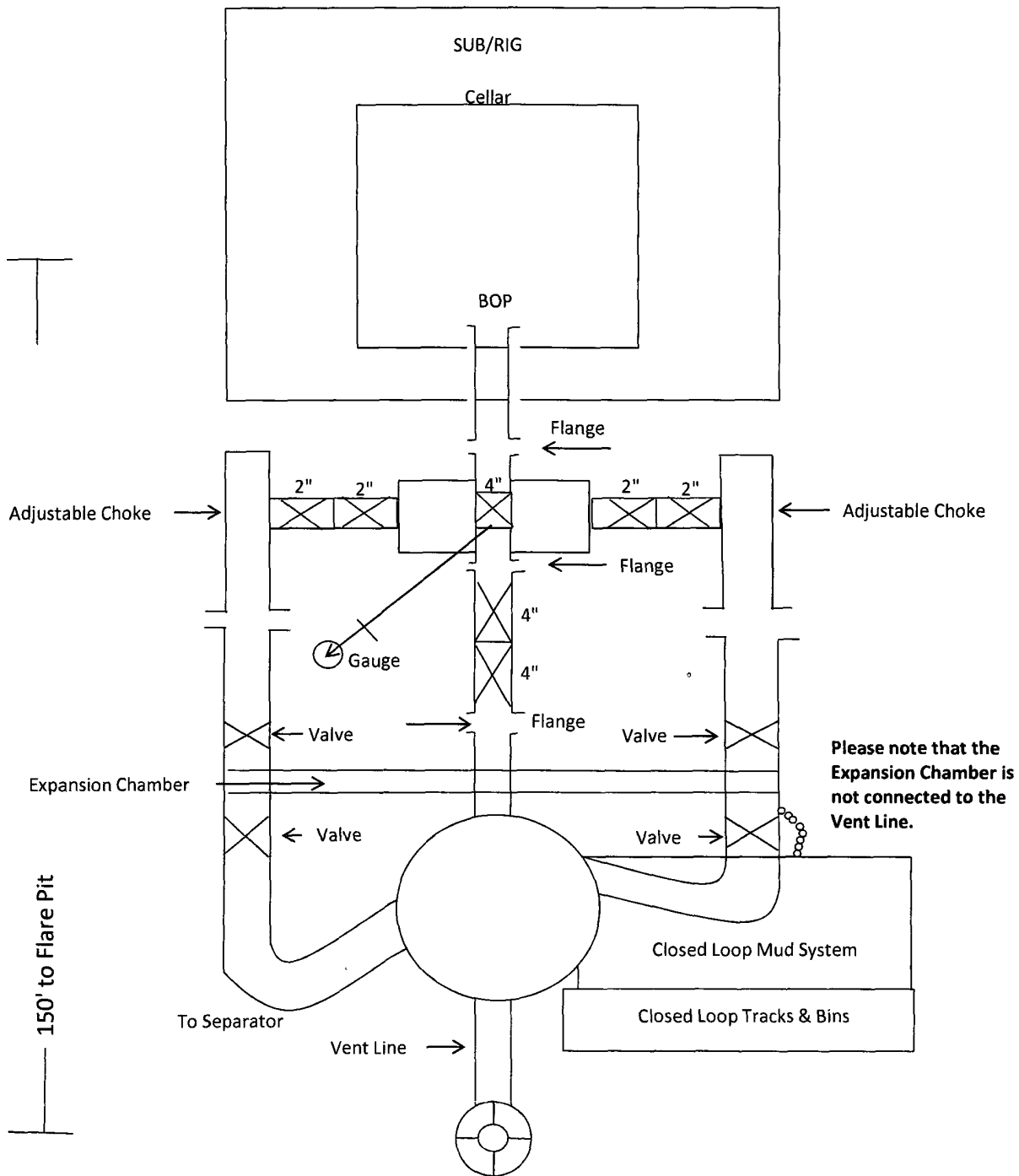
3,000 psi BOP Schematic



2M Choke Manifold Equipment



3M Choke Manifold Equipment





New Mexico Office of the State Engineer **Water Column/Average Depth to Water**

No records found.

PLSS Search:

Section(s): 3

Township: 26S

Range: 32E

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5/4/12 7:34 AM

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WATER COLUMN/ AVERAGE
DEPTH TO WATER

Serial Register Page 

h map

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CASE RECORDATION
(MASS) Serial Register Page

Run Time 07 14 AM

Page 1 of 1

Run Date 05/04/2012

01 12-22-1987;101STAT1330;30USC181 ET SE

Total Acres

Serial Number

Case Type 312021 O&G LSE COMP PD -1987

1,418.620

NMNM-- - 120910

Commodity 459 OIL & GAS L

Case Disposition: AUTHORIZED

Serial Number: NMNM-- - 120910

Name & Address	Int Rel	% Intere
COG PRODUCTION LLC 550 W. TEXAS AVE STE 100 MIDLAND TX 797014287	LESSEE	100 0000000

Serial Number: NMNM-- - 120910

Mer Twp Rng Sec	STYP	SNr SUFF	Subdivision	District/Field Office	County	Mgmt Agency	
23 0260S 0320E 003	ALIQ		E2	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0260S 0320E 005	ALIQ		SWSE	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0260S 0320E 006	ALIQ		NENW	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0260S 0320E 006	LOTS		1A	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0260S 0320E 007	ALIQ		SE	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0260S 0320E 008	ALIQ		NW	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0260S 0320E 010	ALIQ		E2SWSW	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0260S 0320E 031	ALIQ		N2NE,NENW	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0260S 0320E 031	LOTS		1A	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E

3

Serial Number: NMNM-- - 120910

Act Date	Code	Action	Action Remar	Pending Office	
05/30/2008	387	CASE ESTABLISHED	200807028,		2008 05 30
06/30/2008	299	PROTEST FILED	SUSAN H BELL,		2008 06 30
07/01/2008	299	PROTEST FILED	WESTERN ENVR LAW CTR,		2008 07 01
07/01/2008	299	PROTEST FILED	WILD EARTH GUARDIANS,		2008 07 01
07/16/2008	191	SALE HELD			2008 07 16
07/16/2008	267	BID RECEIVED	\$4115100 00,		2008 07 16
09/08/2008	298	PROTEST DISMISSED	SUSAN H BELL,		2008 09 08
10/24/2008	298	PROTEST DISMISSED	WILD EARTH GUARDIANS,		2008 10 24
10/31/2008	237	LEASE ISSUED			2008 10 31
10/31/2008	298	PROTEST DISMISSED	WESTERN ENVR LAW CTR,		2008 10 31
10/31/2008	974	AUTOMATED RECORD VERIF	BTM		2008 10 31
11/01/2008	496	FUND CODE	05,145003		2008 11 01
11/01/2008	530	RLTY RATE - 12 1/2%			2008 11 01
11/01/2008	868	EFFECTIVE DATE			2008 11 01
11/17/2008	042	CASE SENT TO	BROWNSO,		2008 11 17
10/25/2010	232	LEASE COMMITTED TO UNIT	UNIT NM125386		2010 10 25
09/19/2011	899	TRF OF ORR FILED	1		2011 09 19
11/18/2011	940	NAME CHANGE RECOGNIZED	OGX RES LLC/COG PROD		2011 11 18
10/31/2018	763	EXPIRES			2018 10 31

Serial Number: NMNM-- - 120910

Line Nr	Remarks	
02	STIPULATIONS ATTACHED TO LEASE	2
03	NM-11-LN SPECIAL CULTURAL RESOURCE	3
04	SEN-8-19 PLAYAS AND ALKALI LAKES	4

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