12-193

Form 3160-3
(August 2007)

HOBBSOCD Hobbs

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAR 12 2012

RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NMLC068281B

6. If Indian, Allotee or Tribe Name

1a. Type of work: [X] DRILL [ ] REENTER

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

1b. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other [ ] Single Zone [ ] Multiple Zone

8. Lease Name and Well No. (39058) Buck Federal 20 #2H

2. Name of Operator (217817) ConocoPhillips Company

9. API Well No. 30-025-40483

3a. Address 3300 N "A" St, Bldg 6 Midland, TX 79705

3b. Phone No. (include area code) (432)688-6913

10. Field and Pool or Exploratory WC G-5 S263208P; (97838) ~~Red Hills;~~ Bone Springs (GAS)

4. Location of Well (Report location clearly and in accordance with any State requirements.*)

At surface UL B, Sec 20, T 26S, R 32E, 215 FNL 1760 FEL

At proposed prod. zone UL O, Sec 20, T26S, R 32E, 330 FSL 1760 FEL

11. Sec., T. R. M. or Blk. and Survey or Area Sec 20, T26S, R32E

14. Distance in miles and direction from nearest town or post office* 30 miles south west of Jal, NM

12. County or Parish Lea

13. State NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drlg. unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
330 FSL	640.0	40

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. on file
420' east of Russll Fed #5	13550 MD 9278 TVD	ES0085

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3158 Gr	04/26/2012	44 Days

24. Attachments

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

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

25. Signature	Name (Printed/Typed)	Date
	Brian D Maiorino	01/25/2011

Title: Regulatory Specialist

Approved by (Signature)	Name (Printed/Typed)	Date
/s/ Don Peterson		3/8/12

Title	Office
FIELD MANAGER	CARLSBAD FIELD OFFICE

Application approval 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.
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

Approval Subject to General Requirements & Special Stipulations Attached

KZ 3/14/12

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Inserted 2/14/2012 Tmm

MAR 19 2012

OPERATORS NAME:	**ConocoPhillips Company**
LEASE NAME AND WELL NO.:	**Buck Federal 20 #2H**
SURFACE LOCATION:	**365 FNL & 1685 FEL**
BHL:	**330 FSL & 1685 FEL**
FIELD NAME:	**Red Hills**
POOL NAME:	**Bone Spring**
COUNTY:	**Lea County, New Mexico**

The following information is to supplement the Application for Permit to Drill.

DRILLING PLAN

1. Name and estimated tops of all geologic groups, formations, members, or zones.

See COA

Quaternary	Surface	Water
Rustler	748	Salt
Castile	2498	Salt
Delaware Top	4292	Oil/gas/water
Ramsey	4373	Oil/gas/water
Ford Sand	4443	Oil/gas/water
Olds	4448	Oil/gas/water
Cherry Canyon lower top	6545	Oil/gas/water
Bone Spring	8226	Oil/gas/water
Bone Spring 1st carbonate top	8451	Oil/gas/water
Bone Spring 1st carbonate base	8528	Oil/gas/water
KOP	8550	
Avalon A shale Top	8726	Oil/gas/water
Avalon A shale base	8937	Oil/gas/water
Avalon B zone top	8937	Oil/gas/water
Avalon B zone base	9087	Oil/gas/water
Avalon C shale top	9087	Oil/gas/water
		Oil/gas/water
Avalon C Shale Base	9349	Oil/gas/water

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2. Estimated depths and thickness of formations, members or zones potentially containing usable water, oil, gas, or prospectively valuable deposits of other minerals that the operator expects to encounter, and the operator's plans for protecting such resources.

Quanternary	748 (water)
Rustler	4292 (Salt)

All of the water bearing and salt formations identified above will be protected by the intermediate setting of the 9-5/8" casing and circulating of cement to surface

Bone Spring	8451-9349 (gas & gas/oil)

The geologic tops identified above from the Bone Spring/Avalon are part of the target formation.

3. The operator's minimum specifications for blowout prevention equipment and diverter systems to be used, including size, pressure rating, configuration, and the testing procedure and frequency.

A 5000# system will be installed, used, maintained, and tested accordingly. After nippling up, and every 30 days thereafter, preventors will be pressure tested. BOP will be inspected and operated at least daily to insure good working order. All pressure and operating tests will be recorded on the daily drilling reports. Ram Type preventors will be tested to rated working pressure. Annular type preventer(s) shall be tested to 50% of the approved BOP stack working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer. ConocoPhillips Company request a variance to the testing as follows: The 13 3/8 surface casing will be set at a depth of 740' and a Wood Group Pressure Control SH2 type wellhead will be installed on the 13 3/8" casing string. The SH2 type wellhead is a "multi-bowl" type wellhead system that allows the landing of multiple casing strings without having to remove the BOP to install additional wellhead components. This specific wellhead design consists of a 13 3/8" SOW x 13 5/8" 3M psi lower flange assembly with a 13 5/8" x 5M psi upper flange assembly. For the initial installation on the 13 3/8" surface casing, the maximum pressure application to the wellhead system is limited by the 3M psi flange rating. Once installed, the 3M psi wellhead flange will be isolated and all subsequent BOPe pressure testing can be performed to 5000 psi, consistent with the requirements of a 5M system as set forth in Onshore Order No. 2 and the APD Conditions of Approval. The SH2 wellhead schematic and proposed BOPe configuration is attached for reference. COP also request approval for use of one flex hose on the drilling rig. **See Attached BOPe Schematic and Testing Information and hose specifications.**

See COA

See COA

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4. The proposed casing program including size, grade, weights, type of thread and coupling, and the setting depth of each string and its condition. For exploratory wells, or for wells as otherwise specified by the authorized officer, the operator shall include the minimum design factors for tensions, burst, and collapse that are incorporated into the casing design. In cases where tapered casing strings are utilized, the operator shall also include and/or setting depths of each portion.

NEW CASING:

Surface: 17 1/2" hole, 13 3/8" 54.5# J-55 STC csg, set @ 850'. Drill out with 12 ¼" bit and perform shoe test to 11.0 ppg MWE.
Burst: 2.67/Collapse: 4.92/Tension: 3.43

See COA

Inter 1: 12 1/4" hole, 9 5/8" 40# L-80 BTC csg, set @ 4500'
Burst: 2.88/Collapse: 2.62/Tension: 6.31

Production Lateral: 8-3/4" hole, 5 ½" 17# P-110 BTC csg set @ 13,550' MD 9278 TVD. Burst 1.93/Collapse 5.32/Tension 3.79

Casing Sring	Settig Depth TVD	OD"	Wt lb/ft	Grade	Conn	MIY (psi)	Collapse (psi)	Jt Str (Klbs)	MASP	Burst DF	Collapse DF	Axial DF
Surface	850	13-3/8	54.5	J-55	STC	2730	1130	514	1024	2.67	4.92	2.57
Intermdiate	4400	9-5/8	40.0	L-80	BTC	5750	3090	947	1995	2.88	2.62	4.74
Production 13550' MD	9235	5-1/2	17.0	P-110	BTC	10640	7840	568	-	2.17	5.32	2.84

The Plan is to set casing and drill in a southern direction to a proposed bottom hole location of 330 FSL 1685 FEL Unit letter "O" Section 20, 26S, 32E

5. The amount and type(s) of cement, including anticipated additives to be used in setting each casing string, shall be described. If stage cementing techniques are to be employed, the setting depth of the stage collars and amount and type of cement, including additives, and preflush amounts to be used in each stage, shall be given. The expected linear fill-up of each cemented string, or each stage when utilizing stage-cementing techniques, shall also be given.

a. 13-3/8" Csg: lead w/230 sx Class C cement + HalCem-C (Yeild: 1.33 cft)
Tail w/870 sx Class C cement + 1 lbm/sk EconoChem-HRLTRRC (Yield 1.85 cft/sk)
Circulate to surface. Based on 17-1/2" OH, with 200% excess
b. 9-5/8" Csg: lead w/1200 sx 50/50 Class C Poz + 2.5 gal/bbl WG-19 +
1 lbm/sk EconoCem-C (Yield: 2.48 cft/sk) Tail w/270 sx 'H' + HalCem C
(Yield 1.33 cft/sk) Circulate to surface. Based on 12.25" hole with 150% excess
c. 5-1/2" Csg lead w/1140 sx HLH+ 0.3% Halad-9 + 5lbs/sk silicalite + 0.3% HR- 800
(Yield: 2.00 cft/sk) Tail w/805 sx 'H' + 0.4% Halad-9 + 0.1% WG-17 + 3.0% KCL +
0.3% HR-800 (Yield 1.2 cft/sk) circulate cement 500' into 9-5/8" casing. Based on
8-3/4" Hole w/150% excess

See COA

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Bonespring/Red Hills
BURLINGTON RESOURCES
Buck Federal 20 #2H

0

Surface Casing:	
Surface Casing Depth (Ft)	850
Surface Casing O D. (In.)	13.375
Surface Casing ID (In)	12.715
Hole O.D. (In)	17.5
Excess (%)	200%
Volume Tail (Sx)	230
Yield Tail (Cu. Ft./Sx)	1 85
Yield Lead (Cu. Ft./Sx)	1.33
Shoe Joint (Ft)	40
Shoe Volume (Cu. Ft)	35.3
Tail feet of cement	300
Calculated Total Volume (Cu. Ft.)	1,598
Calc. Tail Volume (Cu. Ft.)	417
Calc. Lead Volume (Cu. Ft.)	1,146
Calc. Lead Volume (Sx)	870

Intermediate1 Casing (Lead):	
Intermediate Casing O.D. (In.)	9.625
Intermediate Casing ID (In)	8.835
Hole O.D. (In)	12.25
Excess (%)	150%
cap 12-1/4 - 9-5/8"	0.0558
Calculated fill:	3,800'
Yield Lead (Cu. Ft./Sx)	2.48
Calculated Total Lead (Cu. Ft.)	2,975
Calc. Lead Volume (Sx)	1200

Intermediate1 Casing (Tail):			
Intermediate Casing O.D. (In.)	9-5/8"		
Production Casing ID (In)	8 835		
Hole O D. (In)	12 25		
Excess (%)	150%		
cap 12-1/4 - 9-5/8"	0.0558		
Calculated fill:	700'		
Yield Tail (Cu. Ft /Sx)	1.33		
Shoe Joint (Ft)	40		
Shoe Volume (Cu. Ft)	17.0		
Calc. Tail Volume (Cu. Ft.)	346		5480
Required Tail Volume (Sx)	270		

Production Casing (Lead):	
Intermediate Casing O.D. (In.)	5.500
Intermediate Casing ID (In)	4 892
Hole O.D. (In)	8.75
Excess (%)	150%
cap 5-1/2" - 8-3/4" bls/ft	0.0450
cap 5-1/2 - 9-5/8" bls/ft	0.0408
Calculated fill: (500' into 9-5/8")	6,000'
Yield Lead (Cu. Ft./Sx)	2.0
Calculated Total Lead (Cu. Ft.)	2,274
Calc. Lead Volume (Sx)	1140

Production Casing (Tail):			
Intermediate Casing O.D. (In.)	5.500		
Intermediate Casing ID (In)	4.982		
Hole O.D. (In)	8.75		
Excess (%)	150%		
cap 5-1/2" - 8-3/4" bls/ft	0.0450		
cap 7 - 9-5/8" bls/ft			
Calculated fill:	2,550'	8,550'	See COA
Yield Lead (Cu. Ft./Sx)	1 2		
Calculated Total Tail (Cu. Ft.)	966		
			4050
Required Tail Volume (Sx)	805		

7850

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6. The anticipated type and characteristics of the proposed circulating medium or mediums proposed for the drilling of each wellbore section, the quantities and types of mud and weighting material to be maintained, and the monitoring equipment to be used on the circulating system.

Mud Program:

0-850'	Aquagel/Spudmud	8.9#	Vis 32-36	WL: NC
850-4500'	Brine	10.1#	Vis 28-30	WL: 5-8
4500-13,720'	Cut Brine	9.2-9.3#	Vis 30-40	WL: <=5

Gas detection equipment and pit level flow monitoring equipment will be on location. ConocoPhillips Company will maintain sufficient mud and weighted material on location at all times.

7. The anticipated testing, logging, and coring procedures to be used, including drill stem testing procedures, equipment, and safety measures.

a. DST Program: None
b. Mud Logging: Two-Man – 2800'-TD' Vertical and Horizontal Lateral
Logs to be run: GR-MWD 13720'-8550' See COA

8. List the expected bottom-hole pressure and any anticipated abnormal pressures, temperatures or potential hazards that are expected to be encountered, such as lost circulation zones and hydrogen sulfide. The operator's plans for mitigating such hazards shall be discussed. Should the potential to encounter hydrogen sulfide exist, the mitigation procedures shall comply with the provisions of the BLM.

The expected pressure gradient is 0.433 psi/ft or 9.0-9.1 ppg equivalent
.The average anticipated bottom hole pressure ranges on average 4360 psi.
See COA No hydrogen sulfide is expected to be encountered during drilling operations; however, the potential does exist for H2S. Please see attached H2S contingency plan to be used in the event of occurrence.

Any other facets of the proposed operation which the operator wishes to be considered in reviewing the application. See COA

Anticipated Spud date of April 26, 2012. Construction of well pad and road will begin as soon as all agency approvals are obtained.

9. Address the proposed directional design, plan view, and vertical section in true vertical and measured depth for directional, horizontal, or coil tubing operations.

The proposed directional/horizontal documents are attached.

2/7/2012 Tmm

ConocoPhillips MCBU

Permian Hz Bonespring/Avalon
Buck Federal 20
Buck Federal 20

Buck Federal 20 #2H

Plan: Plan BLM

Standard Planning Report

22 November, 2011

2/7/2012 TM

Database:	EDM Central Planning	**Local Co-ordinate Reference:**	Well Buck Federal 20
Company:	ConocoPhillips MCBU	**TVD Reference:**	WELL @ 3206.0ft (Original Well Elev)
Project:	Permian Hz Bonespring/Avalon	**MD Reference:**	WELL @ 3206 0ft (Original Well Elev)
Site:	Buck Federal 20	**North Reference:**	True
Well:	Buck Federal 20	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Buck Federal 20 #2H		
Design:	Plan BLM		

Project Permian Hz Bonespring/Avalon

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas South Central 4204		

Site Buck Federal 20

Site Position:		**Northing:**	m	**Latitude:**	
From:	None	**Easting:**	m	**Longitude:**	
Position Uncertainty:	0 0 ft	**Slot Radius:**	in	**Grid Convergence:**	0.00 °

Well Buck Federal 20

Well Position	**+N/-S**	0 0 ft	**Northing:**	0 00 m	**Latitude:**	27° 41' 16.664 N
	+E/-W	0.0 ft	**Easting:**	0.00 m	**Longitude:**	105° 10' 51 259 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	3,184 0 ft

Wellbore Buck Federal 20 #2H

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2011	6/21/2011	7.92	55.41	45,610

Design Plan BLM

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0 0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0 0	0.0	180 00

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0 0	0 0	0.00	0.00	0.00	0.00	
8,550.0	0 00	0.00	8,550.0	0.0	0 0	0.00	0.00	0.00	0.00	
8,650.0	8 80	180.00	8,649.6	-7.7	0.0	8 80	8.80	0 00	180.00	
9,695 0	90.24	180.00	9,272.3	-737 3	0 0	7.79	7.79	0 00	0.00	
13,550.0	89.59	180.00	9,278 0	-4,592 3	0 0	0.02	-0 02	0.00	-180.00	

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Database:	EDM Central Planning	**Local Co-ordinate Reference:**	Well Buck Federal 20
Company:	ConocoPhillips MCBU	**TVD Reference:**	WELL @ 3206.0ft (Original Well Elev)
Project:	Permian Hz Bonespring/Avalon	**MD Reference:**	WELL @ 3206.0ft (Original Well Elev)
Site:	Buck Federal 20	**North Reference:**	True
Well:	Buck Federal 20	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Buck Federal 20 #2H		
Design:	Plan BLM		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
5,300.0	0.00	0.00	5,300 0	0.0	0.0	0.0	0.00	0 00	0 00

2/7/2012
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Database:	EDM Central Planning	**Local Co-ordinate Reference:**	Well Buck Federal 20
Company:	ConocoPhillips MCBU	**TVD Reference:**	WELL @ 3206.0ft (Original Well Elev)
Project:	Permian Hz Bonespring/Avalon	**MD Reference:**	WELL @ 3206.0ft (Original Well Elev)
Site:	Buck Federal 20	**North Reference:**	True
Well:	Buck Federal 20	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Buck Federal 20 #2H		
Design:	Plan BLM		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
8,550.0	0.00	0.00	8,550.0	0 0	0.0	0 0	0.00	0.00	0 00
8,600 0	4.40	180.00	8,600.0	-1 9	0.0	1 9	8.80	8.80	0 00
8,650 0	8.80	180 00	8,649.6	-7.7	0.0	7.7	8.80	8 80	0 00
8,700.0	12.70	180.00	8,698.7	-17.0	0.0	17 0	7.79	7.79	0 00
8,800 0	20.49	180.00	8,794.5	-45 5	0.0	45.5	7 79	7.79	0.00
8,900.0	28.28	180.00	8,885 5	-86.8	0.0	86.8	7.79	7.79	0.00
9,000 0	36 08	180.00	8,970.1	-140 0	0.0	140.0	7.79	7.79	0.00
9,100.0	43.87	180 00	9,046.7	-204.2	0.0	204 2	7.79	7.79	0.00
9,200 0	51.66	180 00	9,113.8	-278.2	0.0	278.2	7 79	7.79	0 00
9,300.0	59.46	180.00	9,170.3	-360.6	0.0	360.6	7 79	7.79	0.00
9,400.0	67.25	180.00	9,215.1	-449 9	0.0	449.9	7 79	7.79	0.00
9,500.0	75.04	180 00	9,247.4	-544 5	0.0	544.5	7.79	7.79	0.00
9,600 0	82.84	180.00	9,266 6	-642.5	0.0	642.5	7.79	7.79	0.00
9,695.0	90.24	180.00	9,272.3	-737.3	0.0	737.3	7.79	7.79	0.00
9,700 0	90 24	180 00	9,272.3	-742.3	0 0	742.3	0.02	-0.02	0 00
9,800 0	90.22	180.00	9,271.9	-842.3	0.0	842.3	0 02	-0.02	0.00
9,900.0	90 21	180.00	9,271.5	-942.3	0.0	942 3	0.02	-0.02	0.00
10,000 0	90 19	180.00	9,271.2	-1,042.3	0 0	1,042 3	0.02	-0 02	0.00
10,100 0	90.17	180.00	9,270.8	-1,142.3	0.0	1,142.3	0.02	-0.02	0.00
10,200 0	90.16	180.00	9,270.6	-1,242.3	0.0	1,242 3	0.02	-0.02	0.00
10,300.0	90.14	180.00	9,270 3	-1,342.3	0.0	1,342.3	0.02	-0 02	0 00

2/7/2012 TMA

Database:	EDM Central Planning	**Local Co-ordinate Reference:**	Well Buck Federal 20
Company:	ConocoPhillips MCBU	**TVD Reference:**	WELL @ 3206.0ft (Original Well Elev)
Project:	Permian Hz Bonespring/Avalon	**MD Reference:**	WELL @ 3206.0ft (Original Well Elev)
Site:	Buck Federal 20	**North Reference:**	True
Well:	Buck Federal 20	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Buck Federal 20 #2H		
Design:	Plan BLM		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,400.0	90.12	180.00	9,270.1	-1,442.3	0.0	1,442 3	0.02	-0 02	0.00
10,500.0	90.11	180.00	9,269.9	-1,542.3	0.0	1,542.3	0.02	-0 02	0 00
10,600.0	90.09	180.00	9,269.7	-1,642.3	0.0	1,642.3	0.02	-0 02	0.00
10,700 0	90 07	180.00	9,269.6	-1,742.3	0 0	1,742.3	0 02	-0.02	0 00
10,800.0	90.05	180.00	9,269 5	-1,842.3	0.0	1,842 3	0 02	-0.02	0 00
10,900.0	90.04	180.00	9,269.4	-1,942.3	0.0	1,942 3	0.02	-0.02	0.00
11,000 0	90.02	180.00	9,269.3	-2,042.3	0.0	2,042 3	0.02	-0.02	0.00
11,100 0	90.00	180.00	9,269.3	-2,142.3	0.0	2,142.3	0.02	-0 02	0.00
11,200.0	89.99	180.00	9,269.3	-2,242.3	0.0	2,242.3	0.02	-0.02	0.00
11,300.0	89 97	180.00	9,269.4	-2,342.3	0.0	2,342.3	0.02	-0.02	0 00
11,400.0	89 95	180 00	9,269.4	-2,442.3	0.0	2,442.3	0 02	-0.02	0 00
11,500.0	89 94	180.00	9,269.5	-2,542.3	0.0	2,542.3	0.02	-0.02	0 00
11,600.0	89.92	180 00	9,269.6	-2,642.3	0.0	2,642.3	0.02	-0.02	0 00
11,700.0	89.90	180.00	9,269.8	-2,742 3	0 0	2,742.3	0.02	-0.02	0 00
11,800.0	89.89	180.00	9,270.0	-2,842.3	0.0	2,842.3	0.02	-0.02	0 00
11,900.0	89 87	180.00	9,270.2	-2,942.3	0.0	2,942.3	0.02	-0.02	0 00
12,000.0	89.85	180 00	9,270.4	-3,042.3	0.0	3,042 3	0.02	-0 02	0 00
12,100.0	89.83	180 00	9,270.7	-3,142.3	0.0	3,142 3	0.02	-0.02	0.00
12,200 0	89.82	180.00	9,271.0	-3,242 3	0.0	3,242.3	0 02	-0 02	0.00
12,300.0	89.80	180 00	9,271.4	-3,342.3	0 0	3,342.3	0.02	-0.02	0 00
12,400.0	89.78	180.00	9,271 7	-3,442.3	0.0	3,442.3	0.02	-0.02	0.00
12,500 0	89.77	180.00	9,272.1	-3,542 3	0.0	3,542.3	0.02	-0.02	0.00
12,600.0	89.75	180.00	9,272.5	-3,642.3	0.0	3,642 3	0 02	-0.02	0.00
12,700 0	89.73	180.00	9,273.0	-3,742.3	0.0	3,742 3	0.02	-0 02	0 00
12,800 0	89.72	180.00	9,273.5	-3,842.3	0.0	3,842 3	0.02	-0.02	0 00
12,900.0	89 70	180.00	9,274.0	-3,942.3	0.0	3,942 3	0.02	-0.02	0.00
13,000 0	89.68	180 00	9,274.5	-4,042.3	0.0	4,042 3	0 02	-0.02	0 00
13,100.0	89.67	180.00	9,275.1	-4,142.3	0.0	4,142.3	0 02	-0 02	0.00
13,200 0	89.65	180.00	9,275.7	-4,242.3	0 0	4,242 3	0 02	-0 02	0 00
13,300 0	89.63	180 00	9,276.3	-4,342.3	0 0	4,342 3	0 02	-0 02	0 00
13,400 0	89.62	180.00	9,277.0	-4,442.3	0 0	4,442 3	0 02	-0'02	0 00
13,500.0	89.60	180 00	9,277.6	-4,542.3	0 0	4,542 3	0.02	-0 02	0 00
13,550 0	89.59	180.00	9,278.0	-4,592.3	0.0	4,592.3	0.02	-0.02	0.00

330' FSL

2/7/2012 TMM

DRILLING PLAN

PROSPECT/FIELD	Bonespring/Red Hills			COUNTY/STATE		Lea County, NM
OWNERS	BURLINGTON RESOURCES		LEASE			
WELL NO.	Buck Federal 20 #2H	FNL	FSL	FEL	FWL	
LOCATION	Surface Location	365		1685		
	Bottom Hole Location		330	1685		
EST. T.D.	Leg #1 13,550' MD			GROUND ELEV.		3,160' (est)
					RKB	3183'

PROGNOSIS: Based on 3,160' KB(est)

Marker	S.S. Depth	TVD
Quaternary		Surface
Rustler	2,412	748
Castile	685	2498
Delaware Top	-1,230	4,292
Ramsey	-1109	4373
Ford Sand	-1260	4443
Olds	-1265	4448
Cherry Canyon Lower Top	-3362	6545
Bone Spring	-5,077	8,226
Bone Spring 1st Carbonate Top	-5,311	8,451
Bone Spring 1st Carbonate Base	-5,368	8,528
KOP (est)	**-5,402**	**8,550**
Avalon A Shale Top	-5,573	8,726
Avalon A Shale Base	-5,803	8,937
Avalon B Zone Top	-5,803	8,937
Avalon B Zone Base	-5,927	9,087
Avalon C Shale Top	-5,927	9,087
Avalon C Shale Base (Should not penetrate	-6,194	9,349

LOGS:

Type	Interval
Open Hole	
GR-MWD	13,550' - 8550'

DEVIATION:

Surf	3° max., svy every 500'
Int1/2	3° max., svy every 90'
Prod	

DST'S:

CORES: No core

SAMPLES:

Mudlogging	Start	End	
Two-Man	2,800'	TD	Vertical and Horizontal sections

BOP:

COP Category 3 Well Control Requirements

Nabors Rig M-09 BOPE (With Rotating Head)

- 13-5/8"-5Mpsi Annular (Hydril GK)
- 13-5/8"-5Mpsi Blind Ram (Cameron U)
- 13-5/8"-5Mpsi Cross / Choke & Kill Lines
- 13-5/8"-5M psi Pipe Ram (Cameron U)
- 13-5/8"-5Mpsi Spacer Spool

See COA

Dip Rate (See inclination prediction)

Max. Anticipated BHP: 0.65 psi/ft

Surface Formation:

MUD:	Interval	Type	Max. MW	Vis	WL	Remarks
Surface	0'-850'	Aquagel - Spud Mud	8.9	32-36	NC	
Intermediate 1	850'-4500'	Brine	10.1	28-30	5-8	
Production:	4500'- 13550'	Cut Brine	10	30-40	<=5	

CASING:	Size	Wt ppf	Hole	Depth	Cement	WOC	Remarks
Surface	13-3/8"	54.5	17-1/2	850'	To Surface	12 hrs	
Intermediate 1	9-5/8"	40	12-1/4"	4,500'	To Surface	24 hrs	
Production Lat #1	5-1/2"	17	8-3/4"	13,550'	500' into intermediate	24hrs	Long String

DIRECTIONAL PLAN

	MD	TVD	AZ		
Surface	N/A	N/A	180	Directional Company	DDC
Vertical KOP	8,550'	8,500'	180.0	Vertical Build Rate:	8.8 °/100'
End Build/ 7"Casing (90° curve)	9,695'	9,272'	180.0	Tan Leg Turn Rate	0.0 °/100'
Tangent	N/A	N/A	180.0		
Turn	N/A	N/A	180.0		
TD	13,550'	9,278'	180.0		

Comments:
Surveys will be taken at 90' interval below surface casing while drilling with PDC / Motor / MWD

Prep By:	Luis Serrano	Date:	11/22/11	Doc:	REV 0

2/7/2012
TMM

Buck Federal 20 #2H

Surface Location:			Bottom Hole Location	
	0	1685	330	1685

SAP Network	TBA	
Inv. Handler ID		TBA
Drilling	TBA	
Completion/Facility		$0
Total		

Permit.	
NDIC #	TBA
API #	TBA
Fed #	TBA
AFE#	TBA

Directional:

	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI
Vertical KOP	8550	8500	0	0	0	180
End Build/ 7"Casing (90° curve)	9,695'	9,272'	0	0	0	180 0
Tangent	N/A	N/A	0	0	0	180 0
Turn	N/A	N/A	0	0	0	180 0
TD	13 550'	9 278'	0	0	0	180 0

Formation	TVD
Quaternary	Surface
Rustler	748
Castile	2498
Delaware Top	4292
Ramsey	4373
Ford Sand	4443
Olds	4448
Cherry Canyon Lower Top	6545
Bone Spring	8226
Bone Spring 1st Carbonate Top	8451
Bone Spring 1st Carbonate Base	8528
KOP (est)	8550
Avalon A Shale Top	8726
Avalon A Shale Base	8937
Avalon B Zone Top	8937
Avalon B Zone Base	9087
Avalon C Shale Top	9087
Avalon C Shale Base (Should not penetrate)	9349

KOP (8 8°/100') 8,550

CASING

Surface

850' 13-3/8" 54 5# J-55 STC

Intermediate

4,600' 40# L-80 BTC

Drill Fluids

Surf. Hole:
FW gel mud
8 9#
w/ high vis sweeps

Interm 1
Brine
10 1#
40-50 Vis
5-8 WL

Prod Hole:
Cut Brine
10#
28-36 Vis
<=5 WL

high vis sweeps
as required

Cement

Data. These numbers are only estimates.

Surface:
230 Sx Lead
870 Sx Tail

Based on 17 -1/2" OH
with 200% excess

Intermediate
1,200 Sx Lead
270 Sx Tail

Based on 8 75 In Hole
with 150% excess

Production
1,140 Sx Lead
805 Sx Tail

Based on 0 00 In Hole
with 150% excess

Slurry Top
500' into 9-5/8".

Analysis

Mudlogging:
Two-Man
2,800'

TD

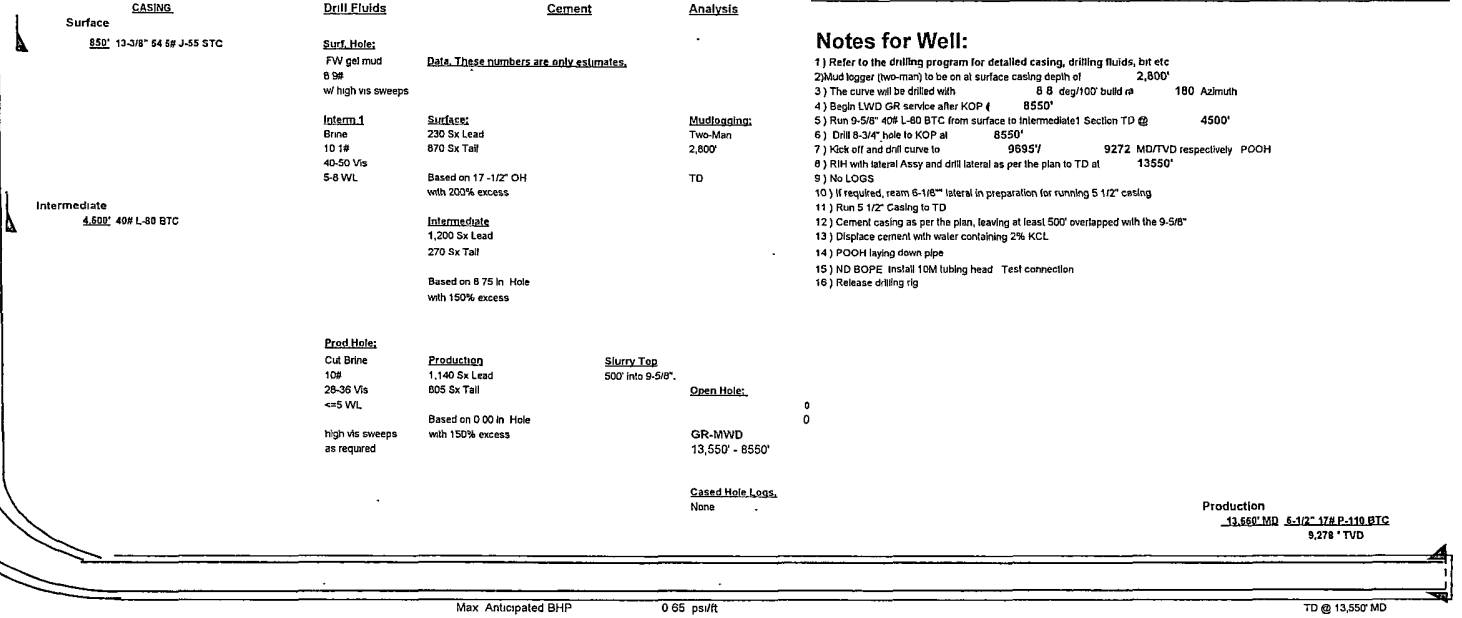
Open Hole:
0
0

GR-MWD
13,550' - 8550'

Cased Hole Logs.
None

Notes for Well:

1) Refer to the drilling program for detailed casing, drilling fluids, bit etc
2)Mud logger (two-man) to be on at surface casing depth of 2,800'
3) The curve will be drilled with 8 8 deg/100' build ra 180 Azimuth
4) Begin LWD GR service after KOP (8550'
5) Run 9-5/8" 40# L-80 BTC from surface to intermediate1 Section TD @ 4500'
6) Drill 8-3/4" hole to KOP at 8550'
7) Kick off and drill curve to 9695'/ 9272 MD/TVD respectively POOH
8) RIH with lateral Assy and drill lateral as per the plan to TD at 13550'
9) No LOGS
10) If required, ream 6-1/8"" lateral in preparation for running 5 1/2" casing
11) Run 5 1/2" Casing to TD
12) Cement casing as per the plan, leaving at least 500' overlapped with the 9-5/8"
13) Displace cement with water containing 2% KCL
14) POOH laying down pipe
15) ND BOPE Install 10M tubing head Test connection
16) Release drilling rig



Max Anticipated BHP 0 65 psi/ft

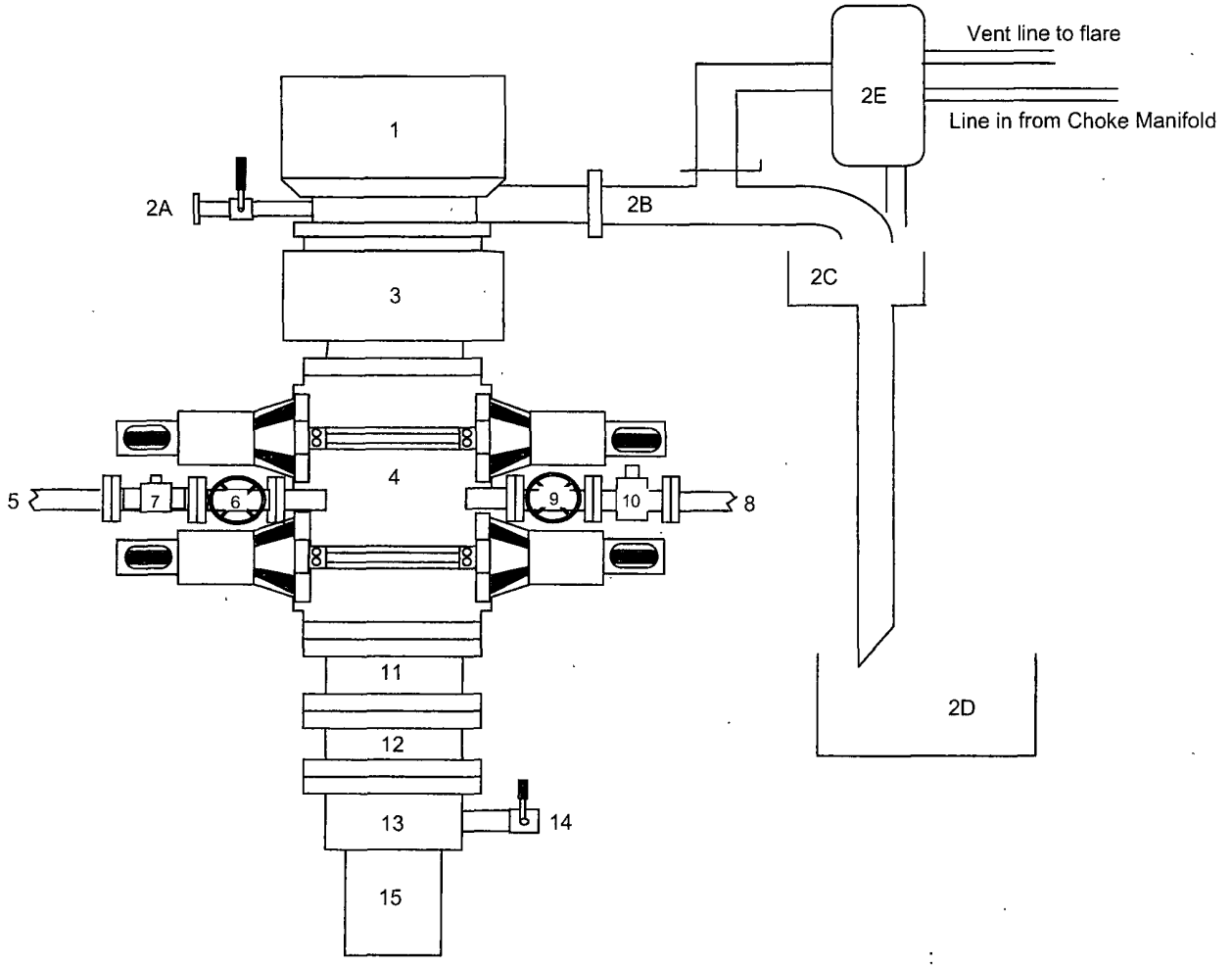
Vick Harvey
Geologist
Date

Luis Serrano
Drilling Engineer
Date

2/7/2012
TMA

BLOWOUT PREVENTER ARRANGEMENT

3M System per Onshore Oil and Gas Order No. 2 utilizing 5M Rated Equipment



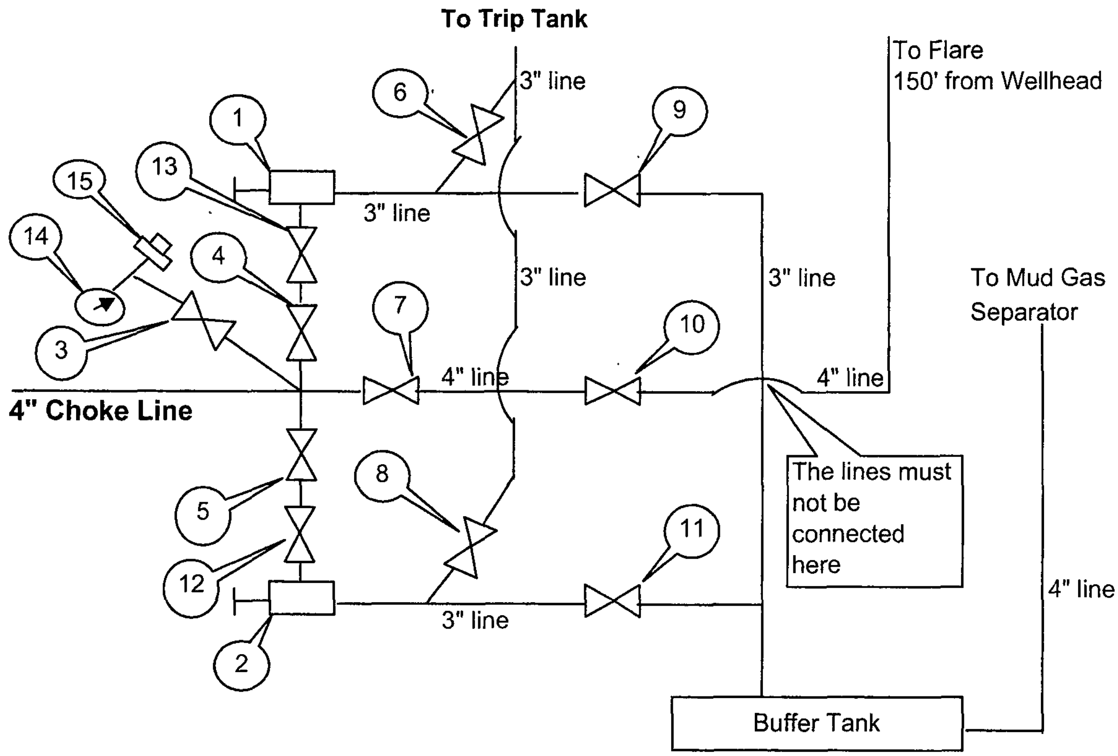
Item	Description
1	Rotating Head (13-5/8", 3M)
2A	Fill up Line and Valve
2B	Flow Line (8")
2C	Shale Shakers and Solids Settling Tank
2D	Cuttings Bins for Zero Discharge
2E	Rental Mud Gas Separator with vent line to flare and return line to mud system
3	Annular BOP (13-5/8", 5M)
4	Double Ram BOP (13-5/8", 5M with Blind Rams in Upper Set and Pipe Rams in Lower Set)
5	Kill Line (2" chicksan, 5000 psi WP)
6	Kill Line Valve, Inner (2", 5000 psi WP)
7	Kill Line Check Valve (2", 5000 psi WP
8	Choke Line (4" Flexible Steel Line, 5000 psi WP)
9	Choke Line Valve, Inner (4", 5000 psi WP)
10	Choke Line Valve, Outer, (Hydraulically operated, 4", 5000 psi WP
11	Spacer Spool (13-5/8" 5M)
12	Spacer Spool (13-5/8" 5M)
13	Casing Head (13-5/8" 5M)
14	Ball Valve and Threaded Nipple on Casing Head Outlet, 2" 5M
15	Surface Casing

Drawn by: Steven O. Moore, Chief Drilling Engineer, Mid-Continent Business Unit, ConocoPhillips Company, 22-Dec-2011

Accepted for operator 2/14/2012 Tam

CHOKE MANIFOLD ARRANGEMENT

3M System per Onshore Oil and Gas Order No. 2 utilizing 10M rated equipment



Item	Description
1	Manual Adjustable Choke, 3-1/16, 10M
2	Manual Adjustable Choke, 3-1/16, 10M
3	Gate Valve, 2-1/16 10M
4	Gate Valve, 3-1/16 10M
5	Gate Valve, 3-1/16 10M
6	Gate Valve, 3-1/16 10M
7	Gate Valve, 4-1/16" 10M
8	Gate Valve, 3-1/16 10M
9	Gate Valve, 3-1/16 10M
10	Gate Valve, 4-1/16" 10M
11	Gate Valve, 3-1/16 5M
12	Gate Valve, 3-1/16 10M
13	Gate Valve, 3-1/16 10M
14	Pressure Gauge
15	2" hammer union tie-in point for BOP Tester

Drawn by:
Steven O. Moore
Chief Drilling Engineer, Mid-Continent Business Unit, ConocoPhillips Company
01-Feb-2012

Inserted per operator 2/14/2012 TMM

M09 CHOKE HOSE SPECIFICATIONS

HOSE MANUFACTURER	HOSE MANUFACTURED DATE	HOSE SERIAL #	HOSE OD	HOSE ID	WORKING PSI	TEST PSI
COPPER STATE RUBBER	2/2007 USA	22269	6.25	3	10K	15K

FLANGE	FLANGE MANUFACTERED DATE	RING TYPE				
4 1/16 10M	11/8/2006	BX153				

See CoA

2/7/2012 TMW

COPPER STATE RUBBER
VISUAL INSPECTION / HYDROSTATIC TEST REPORT
CHOKE & KILL HOSE
10,000 P.S.I. W/P X 15,000 P.S.I. T/P
SPEC: 090-1915 HS
H2S SUITABLE

SHOP ORDER NO.: 16528 SIZE: 3" I.D.

SERIAL NO.: 22269 LENGTH 25 FT. IN.

CONNECTIONS: 4-1/16" 10,000 PSI API FLANGE

VISUAL INSPECTION

(A) END CAPS / SLEEVE RECESS: OK
(B) EXTERIOR / COVER / BRANDING: OK
(C) INTERIOR TUBE: OK

HYDROSTATIC TEST

5 MIN. @ 10,000 PSI

2 MIN. @ 0 PSI 25' 3" OAL

3 MIN. @ 15,000 PSI

WITNESSED BY: Paul Wolfe

DATE February 23, 2007

FORM QA-21- REV-2
3-22-00

2/7/2011
TMA

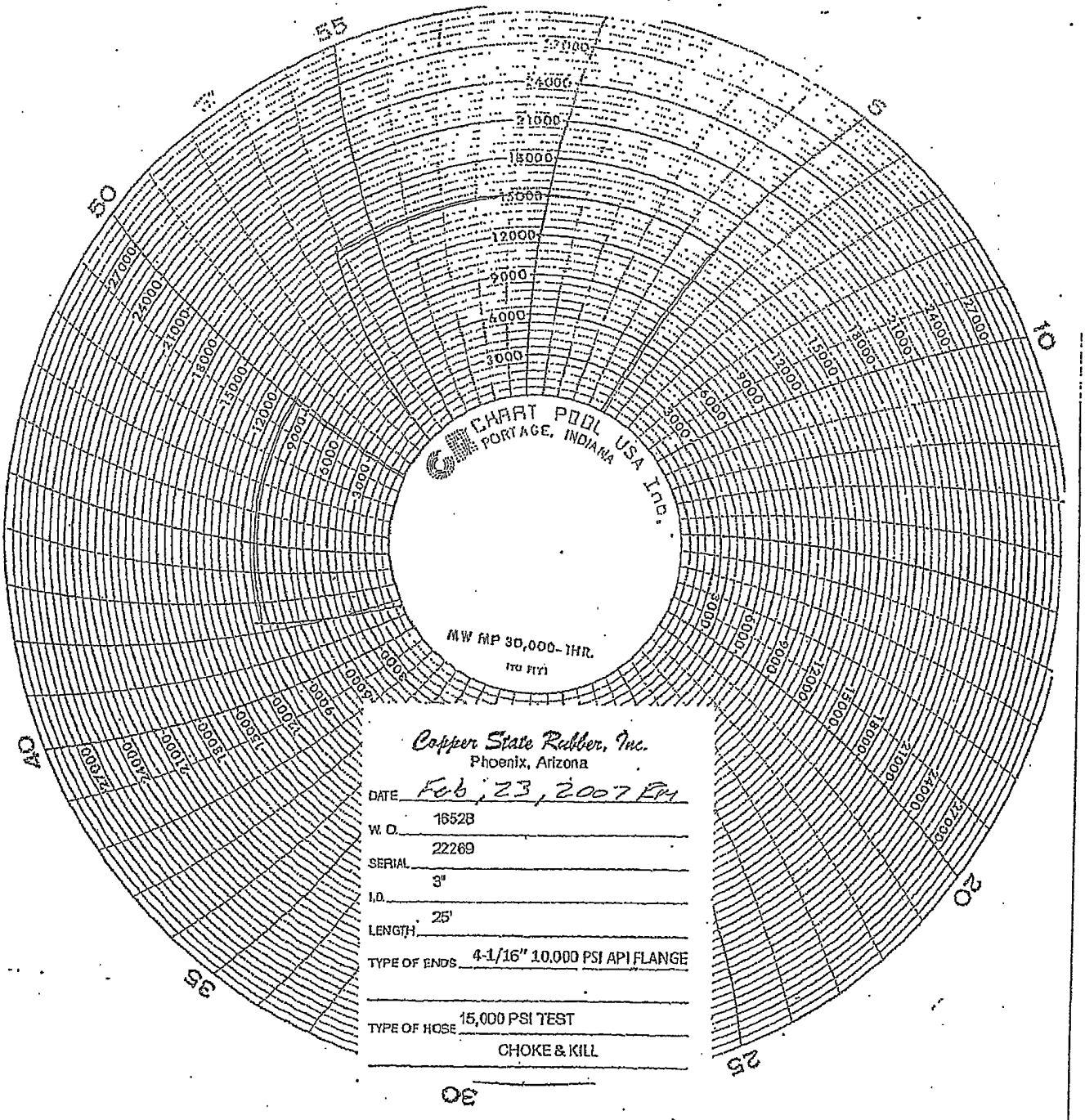
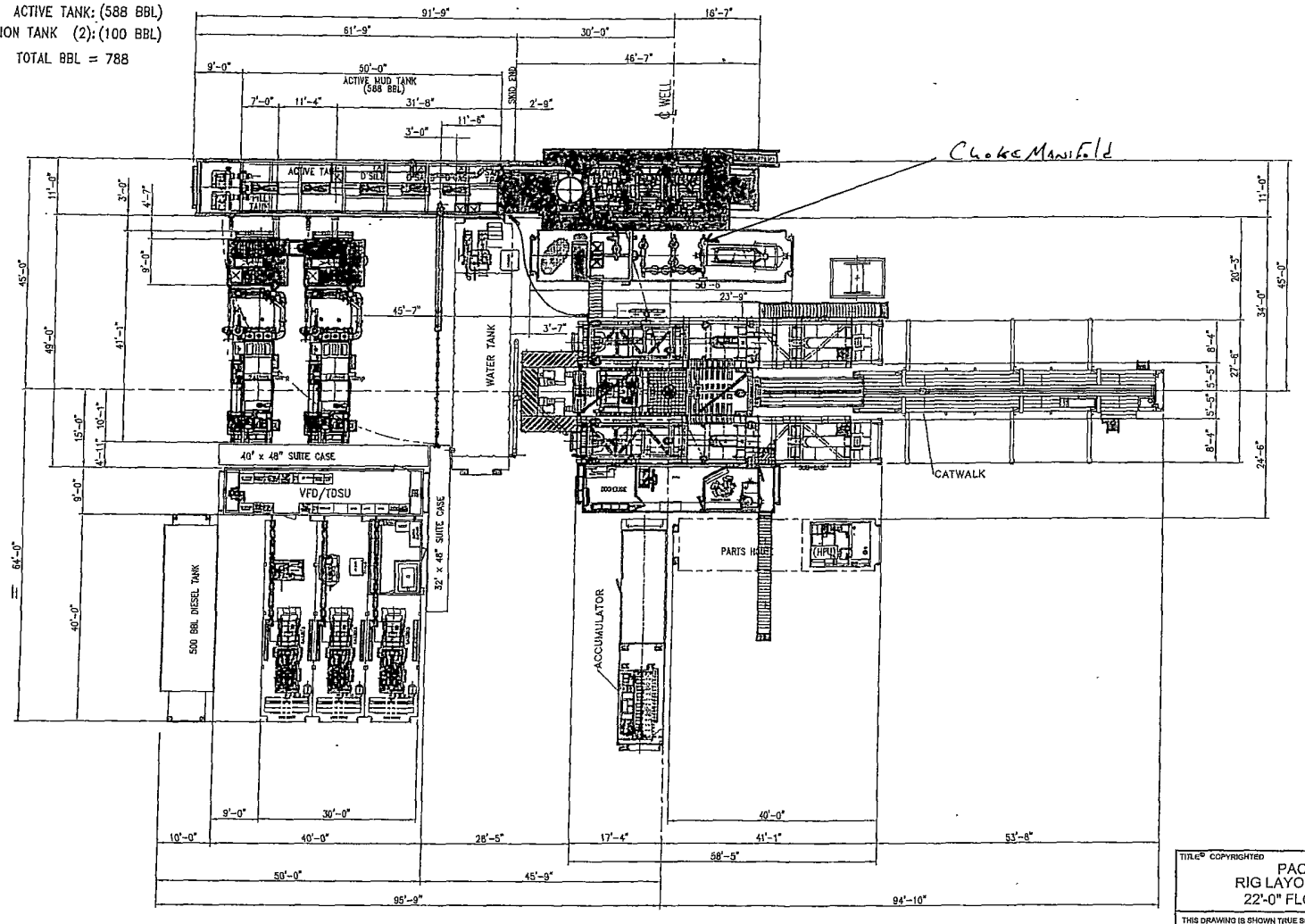


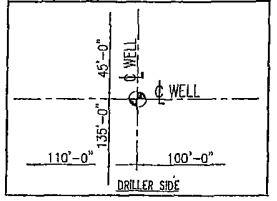
CHART POOL USA Inc.
PORTAGE, INDIANA
MW MP 30,000-1HR.
Copper State Rubber, Inc.
Phoenix, Arizona
DATE Feb 23, 2007 PM
W. O. 1652B
SERIAL 22269
I.D. 3"
LENGTH 25'
TYPE OF ENDS 4-1/16" 10,000 PSI API FLANGE
TYPE OF HOSE 15,000 PSI TEST
CHOKE & KILL

2/7/2012
TMM

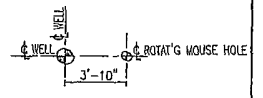
ACTIVE TANK: (588 BBL)
SUCTION TANK (2): (100 BBL)
- TOTAL BBL = 788



PREFERRED LOCATION SIZE



RATHOLE/MOUSEHOLE



DRILLER SIDE

← 375' →

Access Road

← 450 →

REV	DESCRIPTION	DATE	BY	APP
0	UPDATED PER NEW EQUIPMENT	SEPT-20-06	EES	
XREF				

NABORS

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PACE 750 M-SERIES RIGS
RIG LAYOUT (SINGLE WELL DRILLING)
22'-0" FLOOR / 17'-0" CLEAR HEIGHT

THIS DRAWING IS SHOWN TRUE SCALE ONLY WHEN PRINTED ON THIS SIZE PAPER

ER:	RIG: PACE 750	B	
DRN BY: EES	SCALE: 1/20=1'-0"		
DATE: 09/20/2006	APP:		
ER DWG.	DWG: 750-801		