11-897

Form 3160-3 (August 2007) HOBBS OCD

MAR 23 2012

RECEIVED

UNITED STATES OCD-HOBBS
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

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 #4H

2. Name of Operator
ConocoPhillips Company <217817>

9. API Well No.
30-025-40504

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-025 G-05 S263208A;BS UPPER SHALE 97838
Red Hills; Bone Springs

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*
At surface UL D, Sec 20, T 26S, R 32E, 330 FNL 690 FWL
At proposed prod. zone UL M, Sec 20, T 26S, R 32E, 330 FSL 690 FWL

11. Sec., T. R. M. or Blk. and Survey or Area
Sec 20, T 26S, R 32E

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 drig. unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
330 FSL	640	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
650' from Russell Fed #4	9800 TVD 13615 MD	ES0085

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3183 Gr	07/23/2012	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
B. Maiorino	Brian D Maiorino	01/25/2012

Title
Regulatory Specialist

Approved by *(Signature)* James A. Amos	Name *(Printed/Typed)*	Date
		MAR 21 2012
Title FIELD MANAGER	Office 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

KZ 03/26/2012

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached
MAR 27 2012

OPERATORS NAME:	**ConocoPhillips Company**
LEASE NAME AND WELL NO.:	**Buck Federal 20 #4H**
SURFACE LOCATION:	**330 FNL & 690 FWL**
BHL:	**330 FSL & 690 FWL**
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.

Quaternary	Surface	Water
Rustler	766	Salt
Castile	2498	Salt
Delaware Top	4408	Oil/gas/water
Ford Sand	4443	Oil/gas/water
Olds	4448	Oil/gas/water
Cherry Canyon Lower Top	6545	Oil/gas/water
Bone Spring	8255	Oil/gas/water
Bone Spring 1st carbonate top	8489	Oil/gas/water
Bone Spring 1st carbonate base	8546	Oil/gas/water
KOP	8550	
Avalon A shale Top	8751	Oil/gas/water
Avalon A shale base	8981	Oil/gas/water
Avalon B zone top	8981	Oil/gas/water
Avalon B zone base	9105	Oil/gas/water
Avalon C shale top	9105	Oil/gas/water
Avalon C Shale Base	9372	Oil/gas/water
Avalon D shale top	9372	Oil/gas/water
Avalon D shale base	9650	Oil/gas/water
Bone Springs 2nd Carbonate top	9650	Oil/gas/water
Pilot Hole to 9800'	9800'	Oil/gas/water
Bone Springs 2nd Carbonate Base	10,340	Oil/gas/water

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	766 (water)
Rustler	2498 (Salt)
Castile	4408 (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	8489-9372 (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 700' 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.**

2 TMM 2/7/2012

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 @ ~~700~~'. Drill out with 12 ¼" bit and perform shoe test to 11.0 ppg MWE.
Burst: 2.67/Collapse: 4.92/Tension: 2.57

Inter 1: 12 1/4" hole, 9 5/8" 40# L-80 BTC csg, set @ ~~4350~~'
Burst: 2.88/Collapse: 2.62/Tension: 4.74

Production Lateral: 8-3/4" hole, 5 ½" 17# P-110 BTC csg set @ 13,615' MD 9284 TVD. Burst 2.17/Collapse 5.32/Tension 2.48

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~~ 1250	13-3/8	54.5	J-55	STC	2730	1130	514	1024	2.67	4.92	2.57
Intermdiate	~~4400~~ 4325	9-5/8	40.0	L-80	BTC	5750	3090	947	1995	2.88	2.62	4.74
Production	9235	5-1/2	17.0	P-110	BTC	10640	7840	568	-	2.17	5.32	2.84

See COA

The Plan is to set casing and drill to 9800' then plug back and drill in a southern direction to a proposed bottom hole location of 330 FSL 690 FWL Unit letter "M" Section 20, T 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/720 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. Abandonment and Kick Off Plug; Well Drilled to TVD 9800'Pump 594 sx Hal Cem H + 0.3% Halad 23 + 0.2% CFR-3+ 0.1% HR-800(Yield: 1.33 cft/sx, weight: 16.0 #/gal) Based on 8.75" hole w/15% excess

JMM 2/7/2012

d. 5-1/2" Csg lead w/1160 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

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' 1250	Aquagel/Spudmud	8.9#	Vis 32-36 WL: NC
850-4500'	Brine	10.1#	Vis 28-30 WL: 5-8
4500-13,615' 4325	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'-9800' pilot hole
Two-Man- 9800'-13500' Horizontal Lateral
Logs to be run: TC-S-SS-FMI: 9800'- 4500' See COA
GR-MWD 13615'-8550'

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 occurence

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

Anticipated Spud date of October 19, 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.

TMM 2/1/2012

Bonespring/Red Hills
BURLINGTON RESOURCES
BuckFederal 20 #4H

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 (%)	150%
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.)	1,407
Calc. Tail Volume (Cu. Ft.)	417
Calc. Lead Volume (Cu. Ft.)	955
Calc. Lead Volume (Sx)	720

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
Required Tail Volume (Sx)	270

5480

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")	6,100'
Yield Lead (Cu. Ft./Sx)	2.0
Calculated Total Lead (Cu. Ft.)	2,311
Calc. Lead Volume (Sx)	1160

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'	8,615'
Yield Lead (Cu. Ft./Sx)	1.2	
Calculated Total Tail (Cu. Ft.)	966	
Required Tail Volume (Sx)	805	

4050

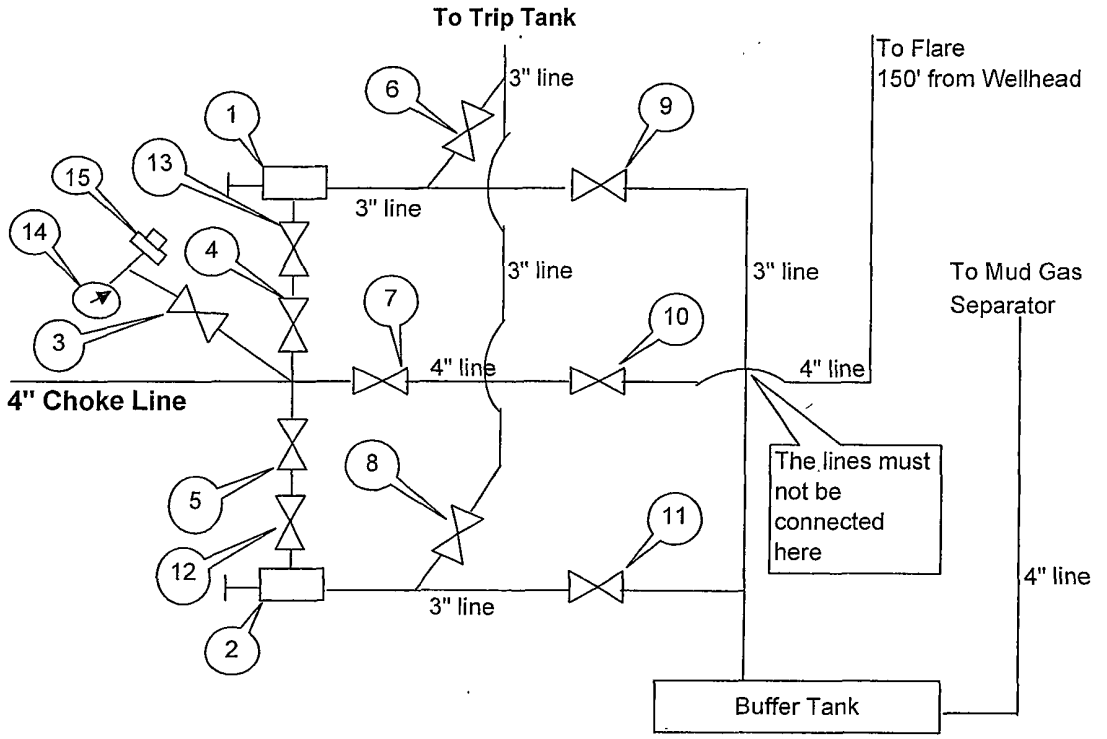
7850

Whipstock Cement job	15	
Hole O.D. (In)	8.75	
Excess (%)	15%	
Length of the plug	1,250	
Yield of the Slurry (Cu. Ft./Sx)	1.01	NEAT CEMENT
Hole Capacity	0.07438	
Calculated Total Volume (Cu. Ft)	600.36282	
Calc. Plug Volume (Sx)	594	

TMM
2/7/2012

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

Stage 2 — Install Split Speed Head With Riser Assembly

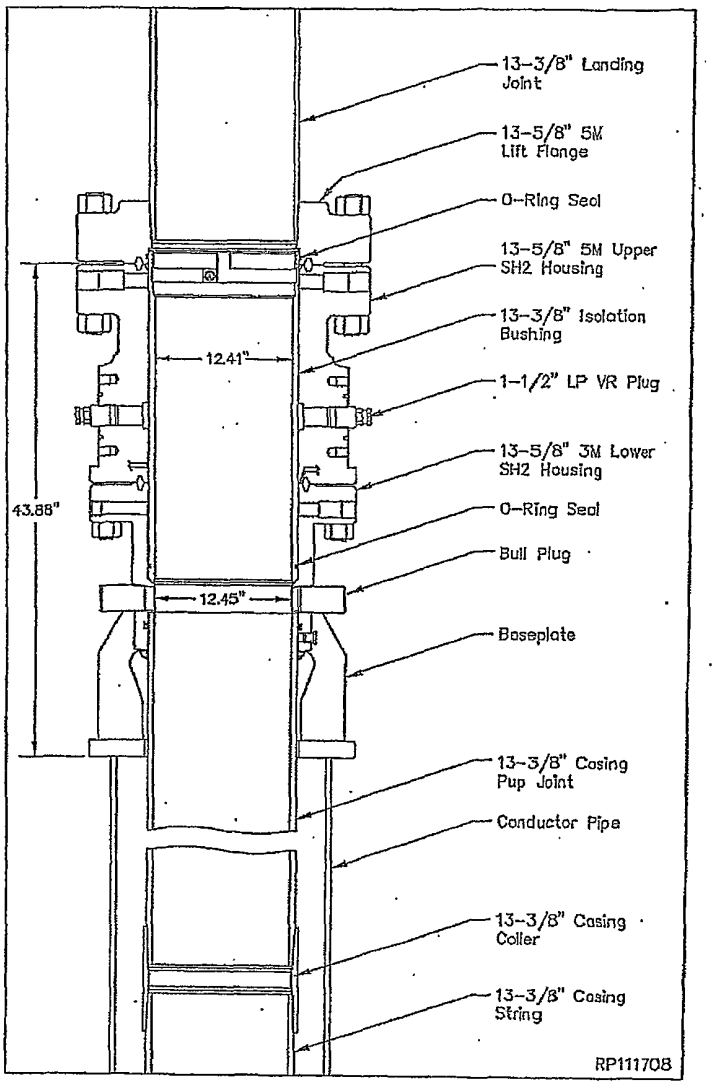
1. Drill and condition hole for surface casing.
2. Cut the conductor pipe off at the correct height above the cellar floor and grind stub level.

Note: The SH2 Riser Assembly is pre-assembled and tested prior to being shipped to location. The assembly is made up of a full length landing joint with flange, upper and lower SH2 housings, and a 10' long pup joint.

3. Examine the *13-5/8" 5M x 13-3/8" SOW SH2 Speed Head/Riser Assembly (Items A1 & B1)*. Verify the following:
   - 10' pup joint is properly welded in place and casing threads are clean and in good condition
   - all outlet equipment has been removed including all studs and nuts, and valves
   - VR plugs are in place and tight
   - base plate is intact and properly welded to the casing head
   - isolation bushing is in place and properly retained with landing flange
   - landing flange with landing joint are in place and connection is properly made up

Note: Lockscrews are removed to clear 27-1/2" rotary.

4. Run the surface casing to the required depth and then set the last joint of casing run in the floor slips.
5. Pick up the SH2 Riser Assembly and make up the assembly in the casing string, tightening the thread connection to the thread manufacturers optimum make up torque.
6. Pick up the casing string and remove the floor slips and rotary bushings.
7. Slowly and carefully lower the assembly through the rotary table until the baseplate contacts the conductor pipe stub. Slack off all weight.
9. Remove the duct tape from the O.D. of both the upper and lower flanges of the assembly and lightly grease all threaded lockscrew holes.
10. Locate the (six) 1-1/4" and the (twelve) 1-1/2" lockscrew assemblies.



11. Install the 1-1/4" integral lockscrew assemblies in the upper flange and the 1-1/4" assemblies in the lower flange as indicated. (Ref. Dwg. RP111709)
12. Rig up the cement head and cement the surface casing string as per program, taking returns through the circulation ports in the baseplate.
13. After the cement job is completed, bleed off and remove the cement head.
14. Remove the landing flange with landing joint and set aside.

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: Rod Wolfe

DATE February 23, 2007

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

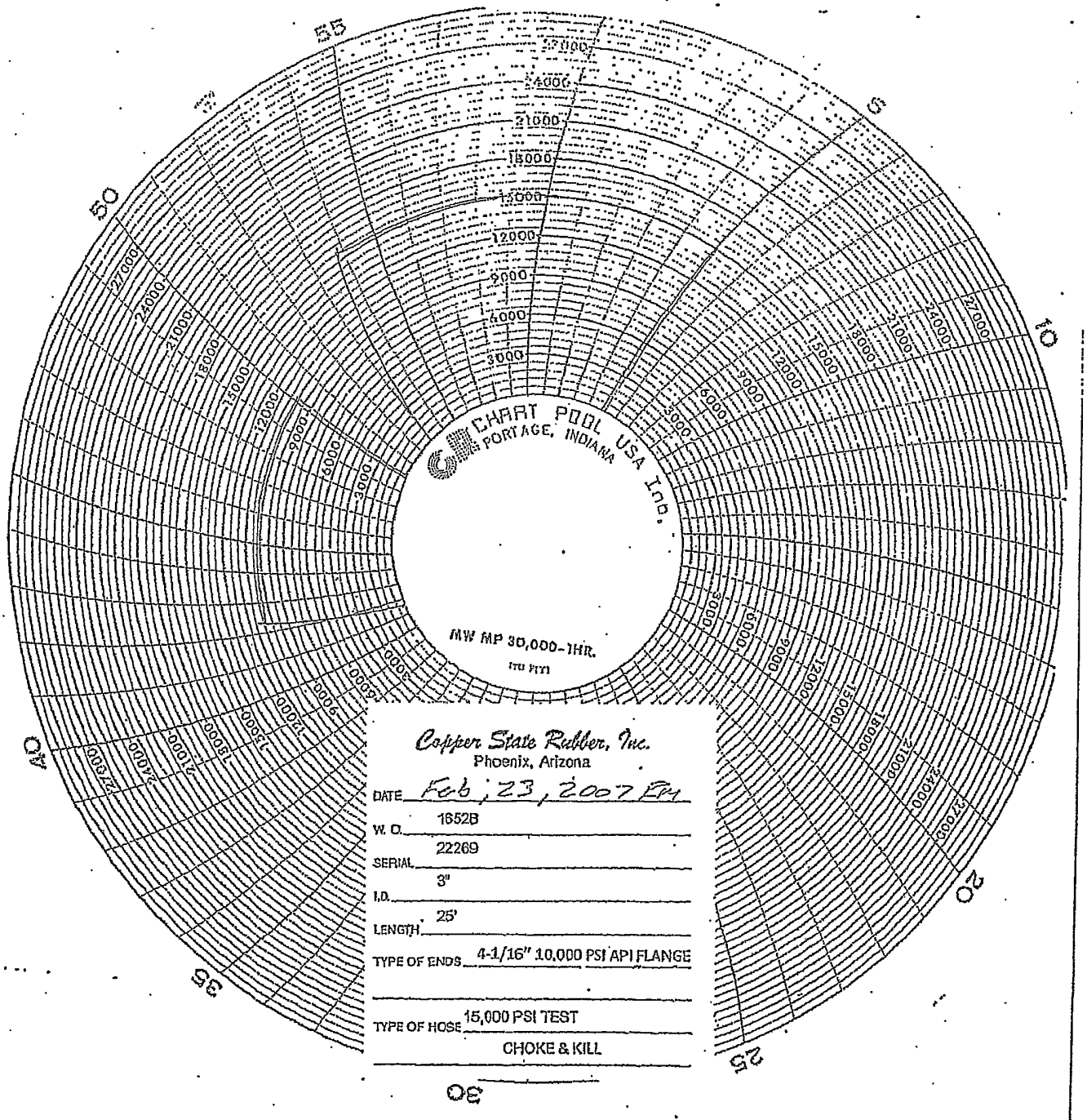


CHART POOL USA Inc.
PORTAGE, INDIANA
MW MP 30,000-1HR.
Copper State Rubber, Inc.
Phoenix, Arizona
DATE Feb 23, 2007 EM
W. O. 1652B
SERIAL 22269
I.D. 3"
LENGTH 25'
TYPE OF ENDS 4-1/16" 10,000 PSI API FLANGE
TYPE OF HOSE 15,000 PSI TEST
CHOKE & KILL

August 09 2011

TenarisHydril

Size: 4.500 in.
Grade: API T95

Wall: 0.430 in.
Weight: 18.900 lbs/ft
Connection: Blue™

PIPE BODY DATA

GEOMETRY

Nominal OD	4.500 in.	Nominal Weight	18.90 lbs/ft	Standard Drift Diameter	3.515 in.
Nominal ID	3.640 in.	Wall Thickness	0.430 in.	Special Drift Diameter	N/A
Plain End Weight	18.71 lbs/ft				

PERFORMANCE

Body Yield Strength	522 x 1000 lbs	Internal Yield	15890 psi	Collapse	16410 psi

BLUE™ CONNECTION DATA

GEOMETRY

Regular OD	5.189 in.	Special Clearance OD	5.051 in.	Connection ID	3.740 in.
Critical Section Area	5.768 sq. in.	Critical Section Area (Special Clearance)	4.659 sq. in.	Make-Up Loss	4.012 in.
Threads per in.	5.00	Coupling Length	9.213 in.		

PERFORMANCE

Regular OD Tension Efficiency	100 %	Joint Yield Strength	522 x 1000 lbs	Internal Yield	15890 psi
Compression Efficiency	100 %	Compression Rating	522 x 1000 lbs	Collapse	16410 psi
Special Clearance Tension Efficiency	85.0 %	Bending	97 °/100 ft		

MAKE-UP TORQUES

Minimum	8630 ft-lbs	Target	9590 ft-lbs	Maximum	10550 ft-lbs
Yield Torque	15750 ft-lbs				

BLANKING DIMENSIONS

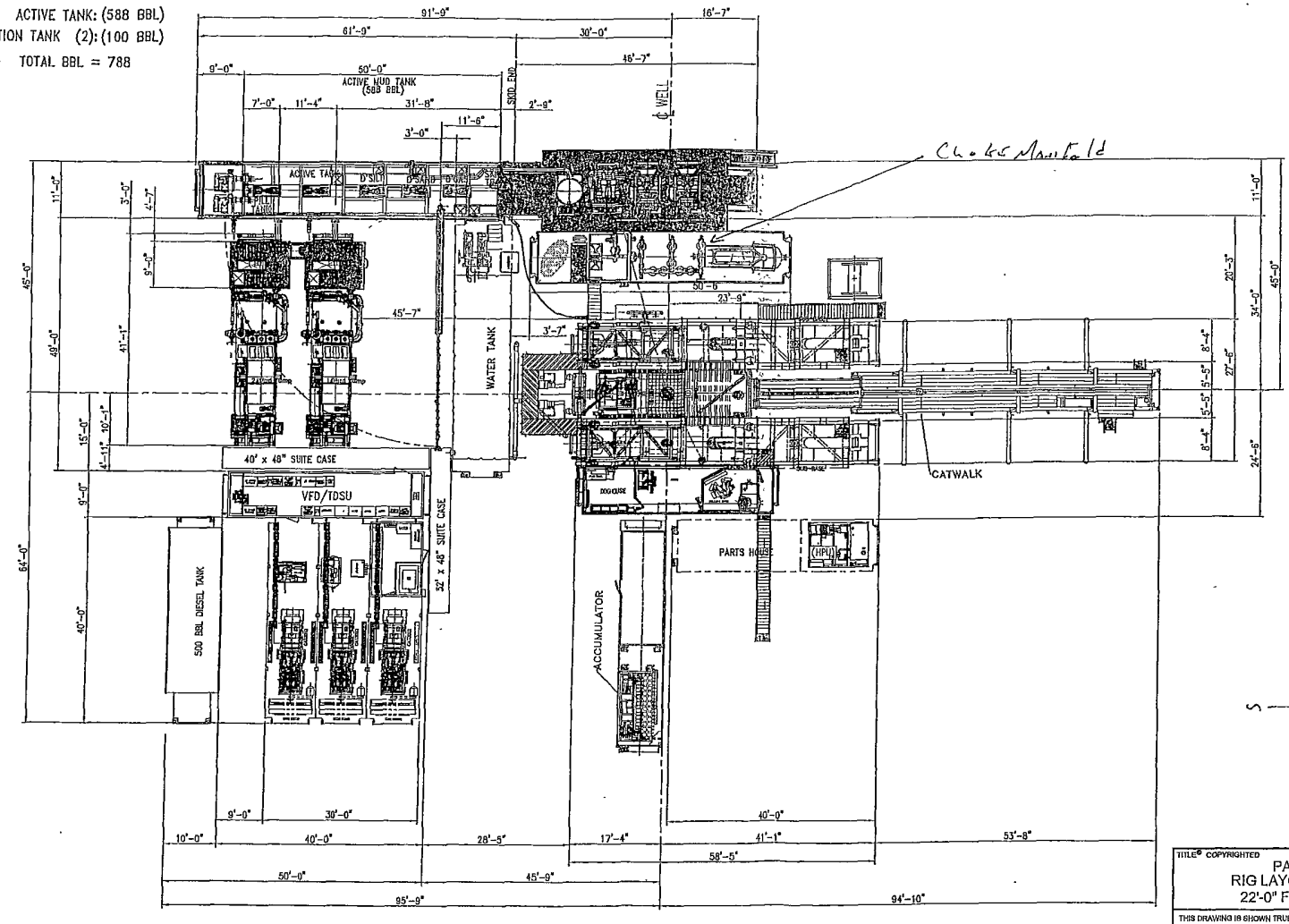
Blanking Dimensions

M09 CHOKE HOSE SPECIFICATIONS

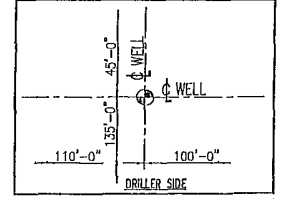
HOSE MANUFACTURER	HOSE MANUFACTURED DATE	HOSE SERIAL #	HOSE OD	HOSE ID	WORKING PSI	TEST PSI
COPPER STATE RUBBER	2/2007 USA	22269	6.25	3	10K	15K

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

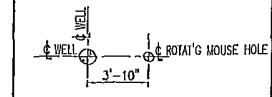
ACTIVE TANK: (588 BBL)
SUCTION TANK (2): (100 BBL)
- TOTAL BBL = 788



PREFERRED LOCATION SIZE



RATHOLE/MOUSEHOLE



DRILLER SIDE

TITLE© COPYRIGHTED

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

B

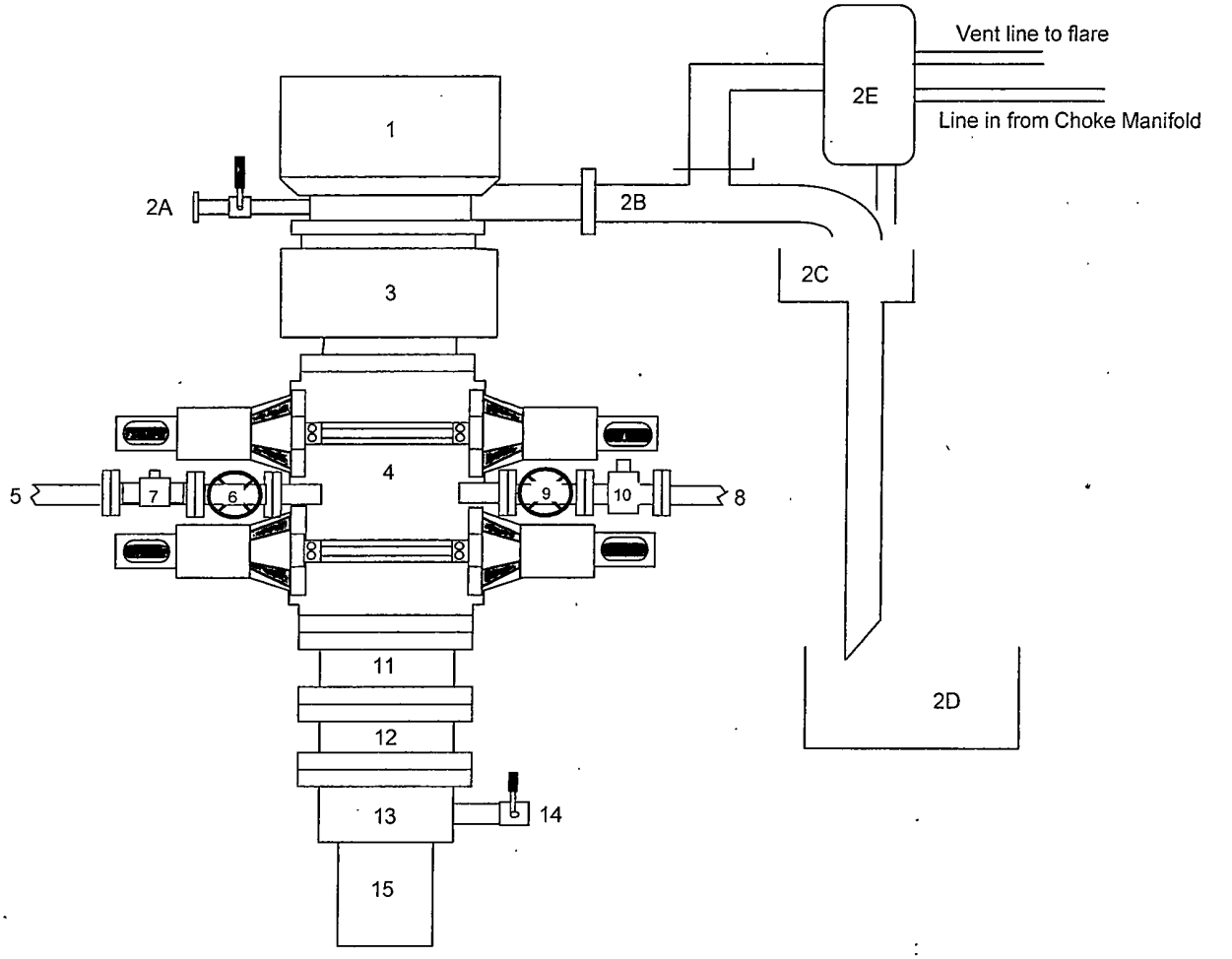
REV.	DESCRIPTION	DATE	BY	APP.
0	UPDATED PER NEW EQUIPMENT	SEPT-20-06	EES	
XREF				

NABORS

ER: RIG: PACE 750
DRN BY: EES SCALE: 1/20=1'-0"
DATE: 09/20/2006 APP:
ER DWG: DWG. 750-601

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