

MAR 23 2012

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMLC060329
6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No. <38742>
Emerald Federal #10

9. API Well No.
30-025-40506

10. Field and Pool, or Exploratory
Maljamar, Yeso, West <44500>

11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 17, T 17S, R 32E

12. County or Parish
Lea
13. State
NM

1a. Type of work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

2. Name of Operator

ConocoPhillips Company

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

3b. Phone No. (include area code)
<217817>
(432)688-6913

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

At surface UL P, Sec 17, T 17S, R 32 E 990 FSL 435 FEL
At proposed prod. zone

14. Distance in miles and direction from nearest town or post office*

4.5 Miles south of Maljamar, NM

15. Distance from proposed*
location to nearest
property or lease line, ft.
(Also to nearest drig. unit line, if any)
435' FEL

16. No. of acres in lease
323.76

17. Spacing Unit dedicated to this well
40

18. Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.
510' From
Emerald #1

19. Proposed Depth
6938'

20. BLM/BIA Bond No. on file
ES0085

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
4032.7' GA

22. Approximate date work will start*
04/12/2012

23. Estimated duration
10 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 *B. D. Maiorino* Name (Printed/Typed) Brian D Maiorino Date 11/16/2011

Title
Regulatory Specialist

Approved by (Signature) *James A. Ames* Name (Printed/Typed) Date

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)

Roswell Controlled Water Basin

KE 07/27/2012

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Drilling Plan
ConocoPhillips Company
Maljamar; Yeso, west

Emerald Federal #10

Lea County, New Mexico

1. Estimated tops of geological markers and estimated depths to water, oil, or gas formations:

The ranges of depths for the formation tops, thicknesses, and planned Total Depths for all the wells to be drilled under this Master Drilling Plan are presented in the table below.

The datum for these depths is RKB (which is 14' above Ground Level).

Formations	Top Depths FT MD	Contents
Quaternary	Surface	Fresh Water
Rustler	684	Anhydrite
Salado (top of salt)	855	Salt
Tansill	1856	Gas, Oil and Water
Yates	2060	Gas, Oil and Water
Seven Rivers	2360	Gas, Oil and Water
Queen	2993	Gas, Oil and Water
Grayburg	3407	Gas, Oil and Water
San Andres	3776	Gas, Oil and Water
Glorieta	5259	Gas, Oil and Water
Paddock	5337	Gas, Oil and Water
Blinberry	5663	Gas, Oil and Water
Tubb	6738	Gas, Oil and Water
Deepest estimated perforation	6728	
Total Depth (maximum)	6938	

All of the water bearing formations identified above will be protected by setting of the 8-5/8" surface casing 25' – 70' into the Rustler formation and circulating of cement from casing shoe to surface in accordance with the provisions of Onshore Oil and Gas Order No. 2 and New Mexico Oil Conservation Division Title 19.

The targeted oil and gas bearing formations identified above will be protected by setting of the 5-1/2" production casing 10' off bottom of TD and circulating of cement from casing shoe to surface in accordance with the provisions of Onshore Oil and Gas Order No. 2 and New Mexico Oil Conservation Division Title 19.

2. Proposed casing program:

Type	Hole Size	Interval MD RKB (ft)		OD	Wt	Gr	Conn	MIY	Col	Jt Str	Safety Factors Calculated per BLM Criteria		
		From	To								Burst DF	Collapse DF	Jt Str DF (Tension) Dry/Buoyant
Cond	20	0	40' – 85' (30' – 75' BGL)	16	0.5" wall	B	Line Pipe	N/A	N/A	N/A	NA	NA	NA
Alt. Cond	20	0	40' – 85' (30' – 75' BGL)	13-3/8	48#	H-40	PE	1730	740	N/A	NA	NA	NA
Surf	12-1/4	0	55' – 754'	8-5/8	24#	J-55	STC	2950	1370	244	8.85	4.11	13.5 / 15.5
Prod	7-7/8	0	6873'–6918'	5-1/2	17#	L-80	LTC	7740	6290	338	2.15	1.75	2.87 / 3.44

The casing will be suitable for H₂S Service.

The surface and production casing will be set approximately 10' off bottom and we will drill the hole with a 45' range uncertainty for casing set depth to fit the casing string so that the cementing head is positioned at the floor for the cement job.

The production casing will be set 155' to 200' below the deepest estimated perforation to provide rathole for the pumping completion and for the logs to get deep enough to log the interval of interest.

Joint Strength Design (Safety) Factors – BLM Criteria

Joint Strength Design (Safety) Factor: SF_J

SF_J = F_j / W_t;

Where

- F_j is the rated pipe Joint Strength in pounds (lbs)
- W_t is the weight of the casing string in pounds (lbs)

The Minimum Acceptable Joint Strength Design (Safety) Factor SF_J = 1.6 dry or 1.8 buoyant

Surface Casing:

SF_J Dry = 244,000 lbs / (754 ft x 24 lb/ft) = 244,000 lbs / 18,096 lbs = 13.5 Dry

SF_J Bouyant = 244,000 lbs / [(754 ft x 24 lb/ft) (1 - 8.5/65.5)] = 244,000 lbs / [18,096 lbs x 0.870] = 15.5 Buoyant

Production Casing:

SF_J Dry = 338,000 lbs / (6918 ft x 17 lb/ft) = 338,000 lbs / 115,923 lbs = 2.87 Dry

SF_J Bouyant = 338,000 lbs / [(6918 ft x 17 lb/ft) (1 - 10.0/65.5)] = 338,000 lbs / [115,923 lbs x 0.847] = 3.44 Buoyant

Collapse Design (Safety) Factors – BLM Criteria

Collapse Design (Safety) Factor: SF_C

SF_C = P_c / (MW x .052 x L_s)

Where

- P_c is the rated pipe Collapse Pressure in pounds per square inch (psi)
- MW is mud weight in pounds per gallon (ppg)
- L_s is the length of the string in feet (ft)

The Minimum Acceptable Collapse Design (Safety) Factor SF_C = 1.125

Surface Casing:

SF_C = 1370 psi / (8.5 ppg x .052 x 754 ft) = 1370 psi / 333 psi = 4.11

Production Casing:

SF_C = 6290 psi / (10 ppg x .052 x 6918 ft) = 6290 psi / 3597 psi = 1.75

Burst Design (Safety) Factors – BLM Criteria

Burst Design (Safety) Factor: SF_B

SF_B = P_i / BHP

Where

- P_i is the rated pipe Burst (Minimum Internal Yield) Pressure in pounds per square inch (psi)
- BHP is bottom hole pressure in pounds per square inch (psi)

The Minimum Acceptable Burst Design (Safety) Factor SF_B = 1.0

Surface Casing:

SF_B = 2950 psi / (8.5 ppg x .052 x 754 ft) = 2950 psi / 333 psi = 8.85

Production Casing:

SF_B = 7740 psi / (10 ppg x .052 x 6918 ft) = 7740 psi / 3597 psi = 2.15

3. Proposed cementing program:

16" or 13-3/8" Conductor:

Cement to surface with rathole mix, ready mix or Class C Neat cement.
(Note: The gravel used in the cement is not to exceed 3/8" diameter)
TOC at surface.

8-5/8" Surface Casing & Cementing Program: 8-5/8" 24# J-55 STC

The intention for the cementing program for the Surface Casing is to:

- Place the Tail Slurry from the casing shoe to 300' above the casing shoe,
- Bring the Lead Slurry to surface.

Spacer: 20 bbls Fresh Water

Slurry		Intervals Ft MD		Weight ppg	Sx	Vol Cuft	Additives	Yield ft ³ /sx
Lead	Class C	Surface	409' – 454'	13.6	350	595	4%Bentonite 2%CaCl ₂ .125%Polyflake 0.2% antifoam Excess =230% based on gauge hole volume	1.70
Tail	Class C	409' – 454'	709' – 754'	14.8	200	268	1% CaCl ₂ Excess = 100% based on gauge hole volume	1.34

Displacement: Fresh Water.

Note: In accordance with the Pecos District Conditions of Approval, we will Wait on Cement (WOC) for a period of not less than 18 hrs after placement or until at least 500 psi compressive strength has been reached in both the Lead Slurry and Tail Slurry cements on the Surface Casing, whichever is greater.

5-1/2" Production Casing & Cementing Program: 5-1/2" 17# L-80 LTC

The intention for the cementing program for the Production Casing is to:

- Place the Tail Slurry from the casing shoe to a point approximately 200' above the top of the Paddock,
- Bring the Lead Slurry to surface.

Spacer: 20 bbls Fresh Water

Slurry		Intervals Ft MD		Weight ppg	Sx	Vol Cuft	Additives	Yield ft ³ /sx
Lead	50:50 Poz/C	Surface	5200'	11.8	1000	2640	10% Bentonite 8 lbs/sx Salt 0.4% Fluid loss additive 0.125% LCM if needed Excess = 225% or more if needed based on gauge hole volume	2.64
Tail	Class H	5200'	6873' – 6918'	16.4	500	535	0.2% Fluid loss additive 0.3% Dispersant 0.15% Retarder 0.2% Antifoam Excess = 75% or more if needed based on gauge hole volume	1.07

Displacement: Fresh Water with approximately 250 ppm glutaraldehyde biocide.

Proposal for Option to Adjust Production Casing Cement Volumes:

The production casing cement volume presented above are estimates based on gauge 7-7/8" hole. We will adjust these volumes based on the caliper log data for each well and our trends for amount of cement returns to surface. Also, if no caliper log is available for any particular well, we would propose an option to possibly increase the production casing cement volume to account for any uncertainty in regard to the hole volume.

4. Pressure Control Equipment:

A 11" 3M system will be installed, used, maintained, and tested accordingly as described in Onshore Oil and Gas Order No. 2.

Our BOP equipment will be:

- Rotating Head
- Annular BOP, 11" 3M
- Blind Ram, 11" 3M
- Pipe Ram, 11" 3M

After nipping up, and every 30 days thereafter or whenever any seal subject to test pressure is broken followed by related repairs, blowout 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 done by an independent service company and recorded on the daily drilling reports. BOP will be tested using a test plug to isolate BOP stack from casing. BOP test will include a low pressure test from 250 to 300 psi for a minimum of 10 minutes or until requirements of test are met, whichever is longer. Ram type preventers and associated equipment will be tested to the approved stack working pressure of 3000 psi isolated by test plug. Annular type preventers will be tested to 50 percent of rated working pressure, and therefore will be tested to 1500 psi. Pressure will be held for at least 10 minutes or until provisions of test are met, whichever is longer. Valve on casing head below test plug will be open during testing of BOP stack. BOP will comply with all provisions of Onshore Oil and Gas Order No. 2 as specified. **See Attached BOPE Schematic.**

5. Proposed Mud System

The mud systems that are proposed for use are as follows:

DEPTH	TYPE	Density ppg	FV sec/qt	API Fluid Loss cc/30 min	pH	Vol bbl
0 – Surface Casing Point	Fresh Water or Fresh Water Native Mud	8.5 – 9.0	28 – 40	N.C.	N.C.	120 – 160
Surface Casing Point to TD	Brine (Saturated NaCl ₂)	10	29	N.C.	10 – 11	400 – 750
Conversion to Mud at TD	Brine Based Mud (NaCl ₂)	10	34 – 45	5 – 10	10 – 11	0 – 750

Drilling mud containing H₂S shall be degassed in accordance with API RP-49, item 5.14. The gases shall be piped into the flare system. Gas detection equipment and pit level flow monitoring equipment will be on location. ConocoPhillips Company will maintain sufficient mud and weighting material on location at all times.

Proposal for Option to Not Mud Up at TD:

FW, Brine, and Mud volume presented above are estimates based on gauge 12-1/4" or 7-7/8" holes. We will adjust these volume based on hole conditions. Also, we propose an option to not mud up leaving only brine in the hole.

Logging, Coring, and Testing Program: See COA

- a. No drill stem tests will be done
- b. No mud logging is planned
- c. No whole cores are planned
- d. The open hole electrical logging program is planned to be as follows:
 - Total Depth to 2500': Resistivity, Density, and Gamma Ray
 - Total Depth to surface Casing Shoe: Caliper
 - Total Depth to surface, Gamma Ray and Neutron
 - Formation pressure data (XPT) on electric line if needed (optional)
 - Rotary Sidewall Cores on electric line if needed (optional)
 - BHC or Dipole Sonic if needed (optional)
 - Spectral Gamma Ray if needed (optional)

6. Abnormal Pressures and Temperatures:

- No abnormal pressures are expected to be encountered.
- Loss of circulation is a possibility in the horizons below the Top of Grayburg. We expect that normal Loss of Circulation Material will be successful in healing any such loss of circulation events.
 - The bottom hole pressure is expected to be 8.55 ppg gradient.
 - The expected Bottom Hole Temperature is 115 degrees F.
- The estimated H₂S concentrations and ROE calculations for the gas in the zones to be penetrated are presented in the table below for the various producing horizons in this area:

FORMATION / ZONE	H2S (PPM)	Gas Rate (MCFD)	ROE 100 PPM	ROE 500 PPM
Grayburg / San Andres (from MCA)	14000	38	59	27
Yeso Group	400	433	34	15

ConocoPhillips will comply with the provisions of Oil and Gas Order # 6

7. Anticipated starting date and duration of operations:

Well pad and road constructions will begin as soon as all agency approvals are obtained. Anticipated date to drill these wells begin from early 2012 through the end after receiving approval of the APD.

Attachments:

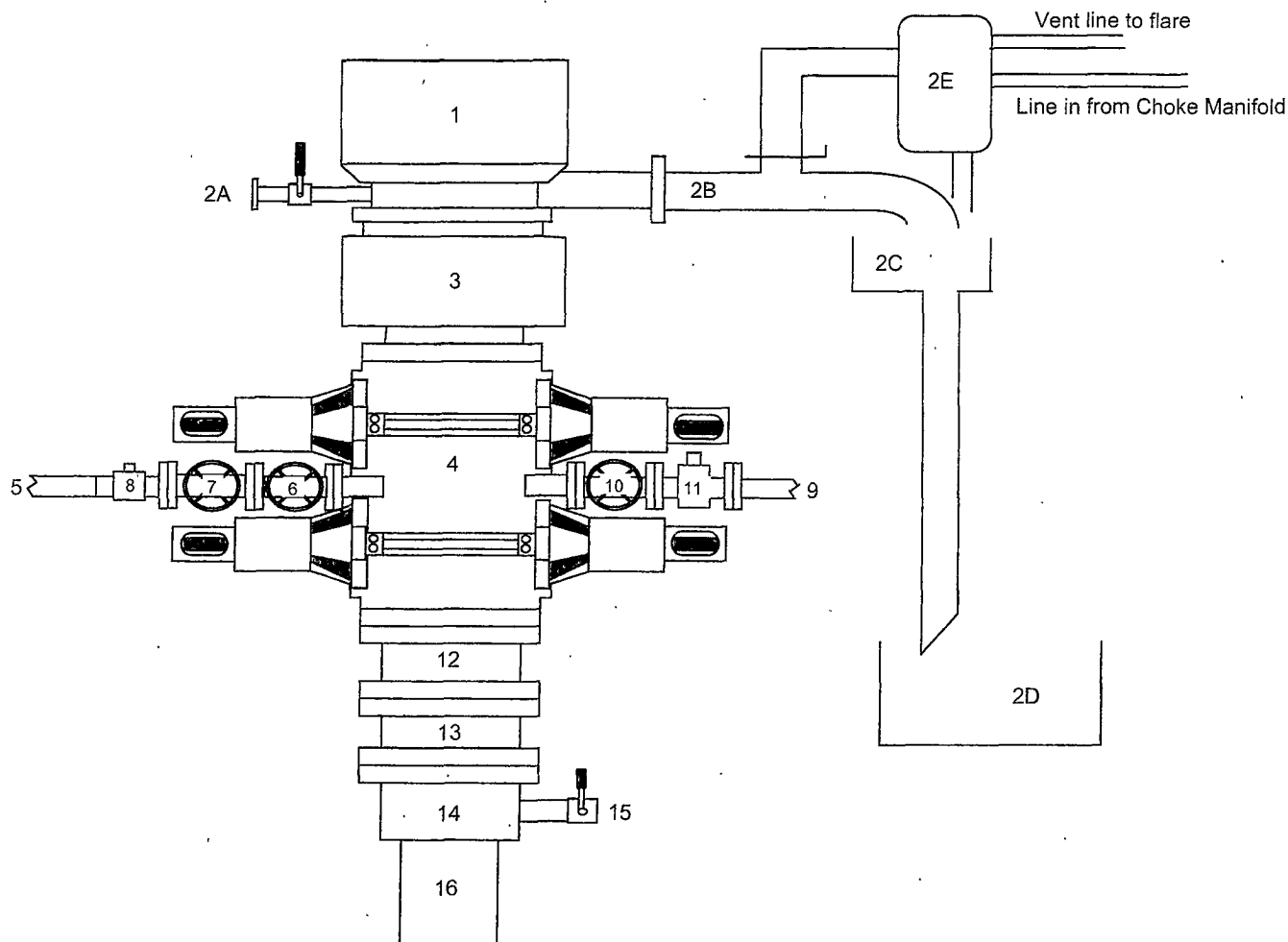
- Attachment # 1 BOP and Choke Manifold Schematic – 3M System
- Attachment # 2 Diagram of Choke Manifold Equipment

Contact Information:

Program prepared by:
James Chen
Drilling Engineer, ConocoPhillips Company
Phone (832) 486-2184
Cell (832) 768-1647
Date: January 1, 2012

BLOWOUT PREVENTER ARRANGEMENT

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

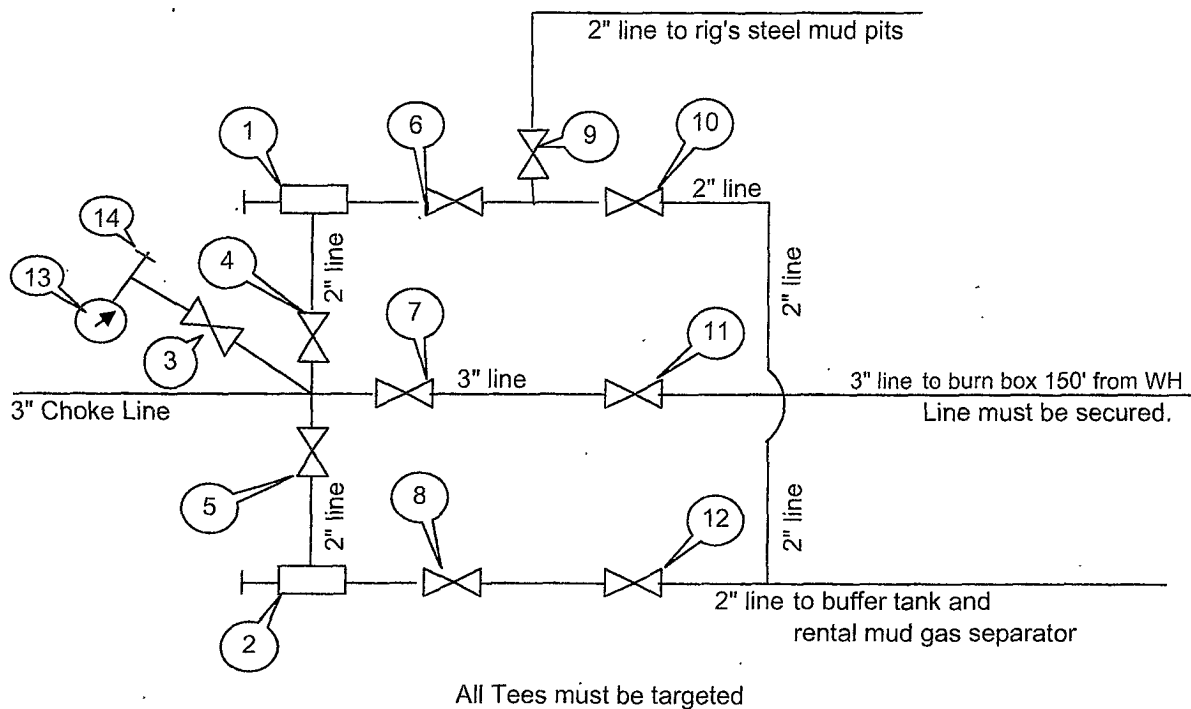


Item	Description
1	Rotating Head (11")
2A	Fill up Line and Valve
2B	Flow Line (8")
2C	Shale Shakers and Solids Settling Tank
2D	Cuttings Bins for Zero Discharge
2E	Rental Mud Gas Separator with vent line to flare and return line to mud system
3	Annular BOP (11", 3000 psi)
4	Double Ram BOP (11", 3000 psi, with Blind Rams in Upper Set and Pipe Rams in Lower Set)
5	Kill Line (2" Flexible Hose, 3000 psi WP)
6	Kill Line Valve, Inner (2-1/6" 3000 psi WP)
7	Kill Line Valve, Outer (2-1/16", 3000 psi WP)
8	Kill Line Check Valve (2-1/16", 3000 psi WP)
9	Choke Line (3" Steel Line, 3000 psi WP)
10	Choke Line Valve, Inner (3-1/8", 3000 psi WP)
11	Choke Line Valve, Outer, (Hydraulically operated, 3-1/8", 3000 psi WP)
12	Spacer Spool (11" 3M x 3M)
13	Spacer Spool (11 3M x 5M)
14	Casing Head (11" 5M)
15	Ball Valve and Threaded Nipple on Casing Head Outlet, 2" 5M
16	Surface Casing

*Inserted per
COP email.
Turn
2/17/2012*

CHOKE MANIFOLD ARRANGEMENT

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



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

We will test each valve to 3000 psi from the upstream side.

Drawn by:

Steven O. Moore

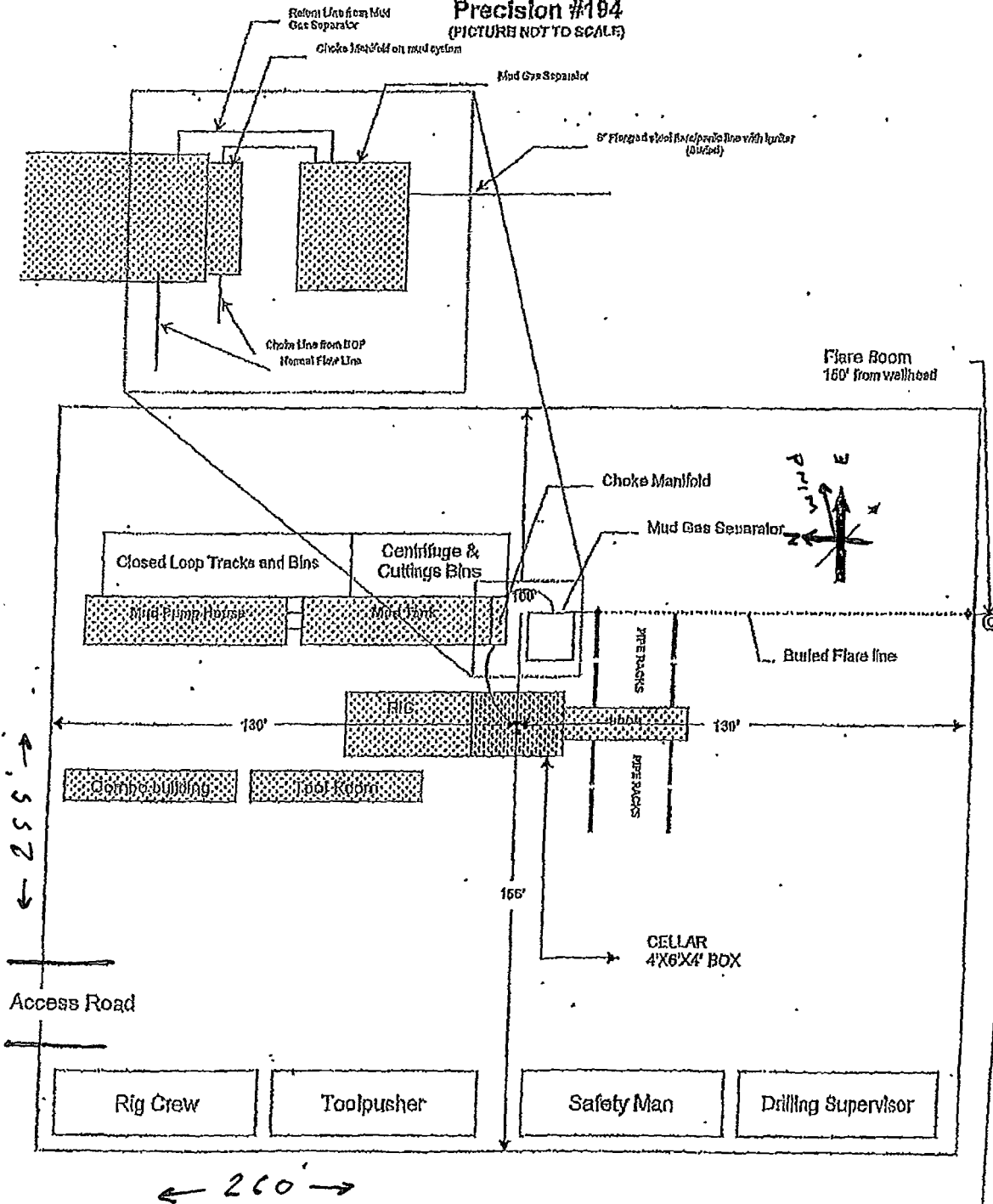
Chief Drilling Engineer, Mid-Continent Business Unit, ConocoPhillips Company

Date: 07-Feb-2012

*Inserted
per COPEmail
TMM
2/17/2012*

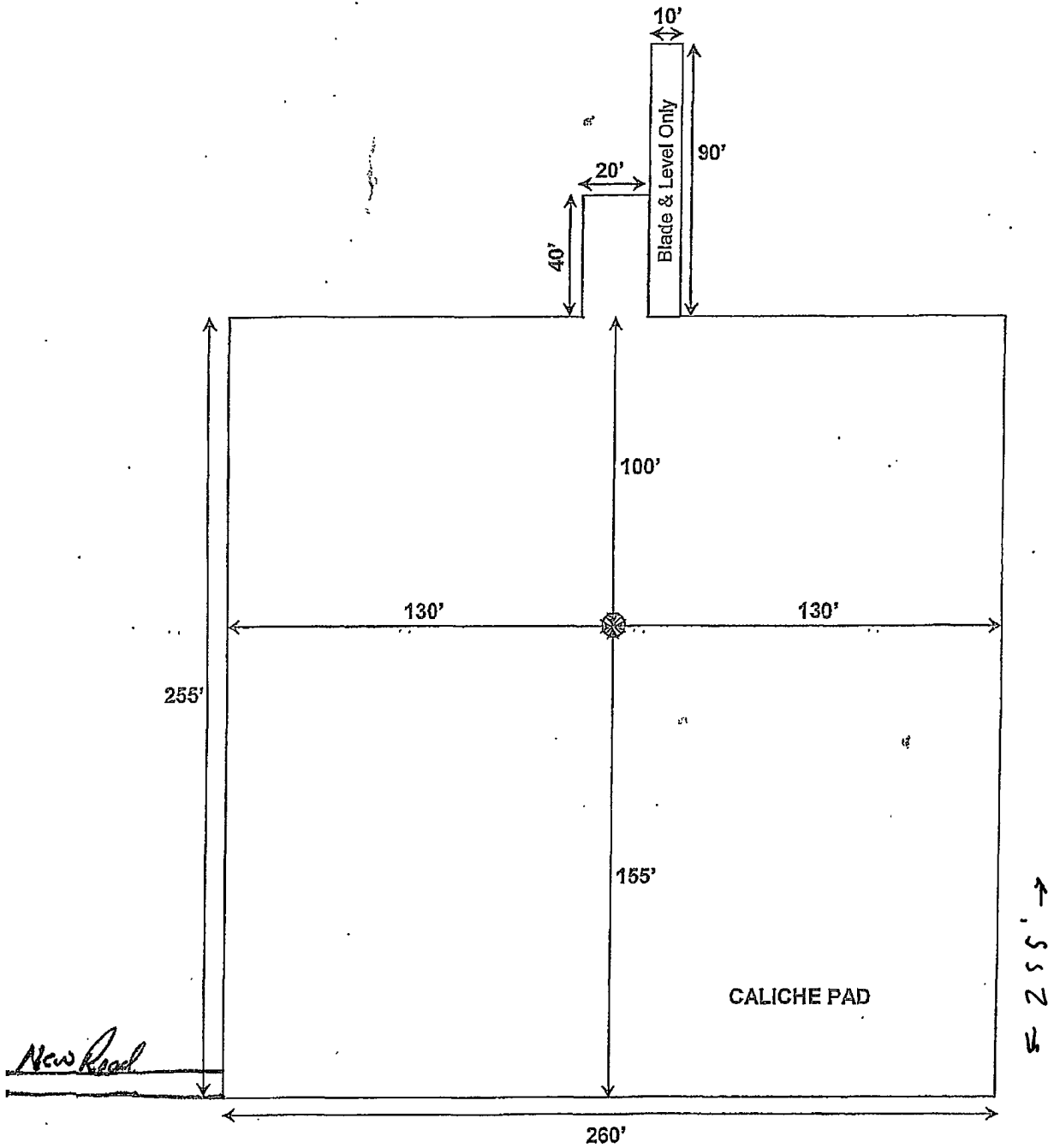
ConocoPhillips Location Schematic and Rig Layout for Closed Loop System

Precision #194
(PICTURE NOT TO SCALE)



ConocoPhillips
Drilling Location
Closed Loop Pits

Well: EMERALD Fld. #10



CELLAR: 6' DIA. x 4' TIN HORN