AT3-12-1113

Form 3160-3
(March 2012)

OCD HOBBS OCD

FEB 21 2013

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NM LC 029405-B

6. If Indian, Allotee or Tribe Name
N/A

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.
N/A

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

8. Lease Name and Well No.
Ruby Federal #51 <38653>

2. Name of Operator ConocoPhillips Company <217817>

9. API Well No.
30-025-41019

3a. Address P.O. Box 51810
Midland, Texas 79710-1810

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

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

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface UL N, Sec. 17, T17S, R32E; 330' FSL, 2155' FWL
At proposed prod. zone UL N, Sec. 17, T17S, R32E; 330' FSL, 1650' FWL

11. Sec., T. R. M. or Blk. and Survey or Area
Sec. 17, T17S, R32E

14. Distance in miles and direction from nearest town or post office*
approximately 3.5 miles south of Maljamar, New Mexico

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) 330' FSL

16. No. of acres in lease
1601.96

17. Spacing Unit dedicated to this well
40 acres

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 507'

19. Proposed Depth
7006' MD/6967' TVD

20. BLM/BIA Bond No. on file
ES0085

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3992' GL

22. Approximate date work will start*
12/15/2012

23. Estimated duration
20 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 Susan B. Maunder — Name *(Printed/Typed)* Susan B. Maunder — Date 8/10/12

Title
Senior Regulatory Specialist

Approved by *(Signature)* /s/ James A. Amos — Name *(Printed/Typed)* — Date FEB 20 2013

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

Approval Subject to General Requirements & Special Stipulations Attached

Ka 02/25/13

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

FEB 27 2013

Drilling Plan
ConocoPhillips Company
Maljamar; Yeso, west

Ruby Federal 51

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 13' above Ground Level).

Formations	Top Depth FT TVD	Top Depths FT MD	Contents
Quaternary	Surface	Surface	Fresh Water
Rustler	711	711	Anhydrite
Salado (top of salt)	885	885	Salt
Tansill (base of salt)	1899	1899	Gas, Oil and Water
Yates	2032	2032	Gas, Oil and Water
Seven Rivers	2395	2395	Gas, Oil and Water
Queen	2999	3004	Gas, Oil and Water
Grayburg	3407	3415	Gas, Oil and Water
San Andres	3822	3833	Gas, Oil and Water
Glorieta	5263	5287	Gas, Oil and Water
Paddock	5334	5358	Gas, Oil and Water
Blinebry	5719	5747	Gas, Oil and Water
Tubb	6767	6804	Gas, Oil and Water
Deepest estimated perforation	6767	6804	Deepest estimated perf. is ~ Top of Tubb
Total Depth (maximum)	6967	7006	200' below deepest estimated perforation

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 ConocoPhillips Corporate Criteria		
	(in)	From	To	(inches)	(lb/ft)			(psi)	(psi)	(klbs)	Burst DF	Collapse DF	Axial (Tension) DF
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	736' – 781'	8-5/8	24#	J-55	STC	2950	1370	244	2.68	6.07	1.4
Prod	7-7/8	0	6951' – 6996'	5-1/2	17#	L-80	LTC	7740	6290	338	1.15	2.02	1.4

The casing will be suitable for H_2S 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.

Casing Design (Safety) Factors – BLM Criteria:

Type	Depth	Wt	MIY	Col	Jt Str	Drill Fluid	Burst	Collapse	Tensile-Dry	Tens-Bouy
Surface Casing	781	24	2950	1370	244000	8.5	8.55	3.97	13.02	14.96
Production Casing	6996	17	7740	6290	338000	10	2.13	1.73	2.84	3.35

Casing Design (Safety) Factors – Additional ConocoPhillips Criteria:

ConocoPhillips casing design policy establishes Corporate Minimum Design Factors (see table below) and requires that service life load cases be considered and provided for in the casing design.

ConocoPhillips Corporate Criteria for Minimum Design Factors

	Burst	Collapse	Axial
Casing Design Factors	1.15	1.05	1.4

Burst Design (Safety) Factors – ConocoPhillips Criteria

The maximum internal (burst) load on the Surface Casing occurs when the surface casing is tested to 1000 psi (pressured up to 1100 psi). The maximum internal (burst) load on the Production Casing occurs during the fracture stimulation where the maximum allowable working pressure (MAWP) is the pressure that would fit ConocoPhillips Corporate Criteria for Minimum Design Factors.

Surface Casing Burst Design Factor = Burst Rating / Maximum Pressure during Casing Pressure Test

Production Casing MAWP for the Fracture Stimulation = Minimum Internal Yield / Production Casing Burst Design Factor

Surface Casing Burst Design Factor:

Bust Design Factor = 2950 psi / 1100 psi = 2.68

Production Casing MAWP:

MAWP for the Fracture Stimulation = 7740 psi / 1.15 = 6730 psi

Collapse Design (Safety) Factors – ConocoPhillips Criteria

The maximum collapse load on the Surface Casing occurs when the pressure is released after bumping the plug on the surface casing cement job. The maximum collapse load on the production casing occurs with the well is pumped off on production. We plan to cement the production casing to surface, and therefore the external pressure profile on the production casing should be equal to the pore pressure of the horizons on the outside of the casing which we estimate to be 8.55 ppg gradient.

Surface Casing Collapse Design Factor = Collapse Rating / (Cement Column Hydrostatic Pressure – Displacement Fluid Hydrostatic Pressure)

Production Casing Collapse Design Factor = Collapse Rating / Maximum Possible Pore Pressure

Surface Casing Collapse Design Factor:

Collapse Design Factor = 1370 psi / {[(300 ft x .052 x 14.8 ppg) + (481 ft x .052 x 13.6 ppg)] – (781 ft x .052 x 8.5 ppg)}

Collapse Design Factor = 1370 psi / 226 psi = 6.07

Production Casing Collapse Design Factor:

Collapse Design Factor = 6290 / (8.55 ppg x .052 x 6,996 ft) = 6290 psi / 3,110 psi = 2.02

Axial Design (Safety) Factors – ConocoPhillips Criteria

The maximum axial (tension) load occurs if casing were to get stuck and pulled on to try to get it unstuck.
Maximum Allowable Hookload = Joint Strength Rating / Axial Design Factor
Overpull Margin = Maximum Allowable Hook Load - Air Wt of the String

Surface Casing Overpull Margin:
Maximum Allowable Hookload = 244,000 lbs / 1.4
Maximum Allowable Hookload = 174,286 lbs
Overpull Margin = 174,286 lbs – (781 ft x 24 lb/ft)
Overpull Margin = 174,286 lbs – 18,744 lbs = 155,542 lbs

Production Casing Overpull Margin:
Maximum Allowable Hookload = 338,000 lbs / 1.4
Maximum Allowable Hookload = 241,429 lbs
Overpull Margin = 241,428 lbs – (6,996 ft x 17 lb/ft)
Overpull Margin = 241,428 lbs – 118,932 lbs = 122,497 lbs

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	436' – 481'	13.6	270	462	4%Bentonite 2%CaCl2 .125%Polyflake 0.2% antifoam Excess =180% based on gauge hole volume	1.71
Tail	Class C	436' – 481'	736' – 781'	14.8	200	268	1% CaCl2 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	700	1820	10% Bentonite 8 lbs/sx Salt 0.4% Fluid loss additive 0.125% LCM if needed Excess = 115 % or more if needed based on gauge hole volume	2.6
Tail	Class H	5200'	6951' – 6996'	16.4	400	428	0.2% Fluid loss additive 0.3% Dispersant 0.15% Retarder 0.2% Antifoam Excess = 45% or more if needed based on gauge hole volume	1.07

Displacement: Fresh Water with approximately 250 ppm gluteraldehyde 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 nippling 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.

6. Logging, Coring, and Testing Program:

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)

7. 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 H_2S 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

8. **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 late 2012 through the 2013 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: 20 July 2012

ConocoPhillips

ConocoPhillips MCBU

Buckeye
Ruby Federal
Ruby Federal 51

Original Hole

Plan: Actual Plan

Standard Planning Report

20 July, 2012

Database:	EDM Central Planning	**Local Co-ordinate Reference:**	Well Ruby Federal 51
Company:	ConocoPhillips MCBU	**TVD Reference:**	RKB @ 3995.0ft (PD 822)
Project:	Buckeye	**MD Reference:**	RKB @ 3995.0ft (PD 822)
Site:	Ruby Federal	**North Reference:**	Grid
Well:	Ruby Federal 51	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Actual Plan		

Project	Buckeye, Lea County, NM		
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	Ruby Federal, New Mexico, East				
Site Position:		**Northing:**	666,097.48 ft	**Latitude:**	32° 49' 48.040 N
From:	Lat/Long	**Easting:**	666,763.62 ft	**Longitude:**	103° 47' 25.559 W
Position Uncertainty:	3.5 ft	**Slot Radius:**	8"	**Grid Convergence:**	0.29 °

Well	Ruby Federal 51, Slant Directional Well					
Well Position	**+N/-S**	0.0 ft	**Northing:**	665,440.59 ft	**Latitude:**	32° 49' 41.528 N
	+E/-W	0.0 ft	**Easting:**	666,996.92 ft	**Longitude:**	103° 47' 22.864 W
Position Uncertainty		3.5 ft	**Wellhead Elevation:**	ft	**Ground Level:**	3,982.0 ft

Wellbore	Original Hole				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	BGGM2012	7/13/2012	7.70	60.65	48,839

Design	Actual Plan				
Audit Notes:					
Version:	1.0	**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.0	0.0	0.0	270.00

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	
2,121.2	0.00	0.00	2,121.2	0.0	0.0	0.00	0.00	0.00	0.00	
2,621.2	7.50	270.00	2,619.8	0.0	-32.7	1.50	1.50	0.00	270.00	
7,005.9	7.50	270.00	6,967.0	0.0	-605.0	0.00	0.00	0.00	0.00	Ruby Federal 51 (Alt.

Database:	EDM Central Planning	**Local Co-ordinate Reference:**	Well Ruby Federal 51
Company:	ConocoPhillips MCBU	**TVD Reference:**	RKB @ 3995.0ft (PD 822)
Project:	Buckeye	**MD Reference:**	RKB @ 3995.0ft (PD 822)
Site:	Ruby Federal	**North Reference:**	Grid
Well:	Ruby Federal 51	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Actual Plan		

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
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
Conductor									
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
711.0	0.00	0.00	711.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
736.0	0.00	0.00	736.0	0.0	0.0	0.0	0.00	0.00	0.00
Surface									
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
885.0	0.00	0.00	885.0	0.0	0.0	0.0	0.00	0.00	0.00
Salado									
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
1,899.0	0.00	0.00	1,899.0	0.0	0.0	0.0	0.00	0.00	0.00
Tansill									
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
2,032.0	0.00	0.00	2,032.0	0.0	0.0	0.0	0.00	0.00	0.00
Yates									
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,121.2	0.00	0.00	2,121.2	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	1.18	270.00	2,200.0	0.0	-0.8	0.8	1.50	1.50	0.00
2,300.0	2.68	270.00	2,299.9	0.0	-4.2	4.2	1.50	1.50	0.00
2,395.2	4.11	270.00	2,395.0	0.0	-9.8	9.8	1.50	1.50	0.00
Seven Rivers									
2,400.0	4.18	270.00	2,399.8	0.0	-10.2	10.2	1.50	1.50	0.00
2,500.0	5.68	270.00	2,499.4	0.0	-18.8	18.8	1.50	1.50	0.00
2,600.0	7.18	270.00	2,598.7	0.0	-30.0	30.0	1.50	1.50	0.00
2,621.2	7.50	270.00	2,619.8	0.0	-32.7	32.7	1.50	1.50	0.00
2,700.0	7.50	270.00	2,697.9	0.0	-43.0	43.0	0.00	0.00	0.00
2,800.0	7.50	270.00	2,797.0	0.0	-56.0	56.0	0.00	0.00	0.00
2,900.0	7.50	270.00	2,896.2	0.0	-69.1	69.1	0.00	0.00	0.00
3,000.0	7.50	270.00	2,995.3	0.0	-82.1	82.1	0.00	0.00	0.00
3,003.7	7.50	270.00	2,999.0	0.0	-82.6	82.6	0.00	0.00	0.00
Queen									
3,100.0	7.50	270.00	3,094.5	0.0	-95.2	95.2	0.00	0.00	0.00
3,200.0	7.50	270.00	3,193.6	0.0	-108.2	108.2	0.00	0.00	0.00
3,300.0	7.50	270.00	3,292.8	0.0	-121.3	121.3	0.00	0.00	0.00
3,400.0	7.50	270.00	3,391.9	0.0	-134.3	134.3	0.00	0.00	0.00

Database:	EDM Central Planning	**Local Co-ordinate Reference:**	Well Ruby Federal 51
Company:	ConocoPhillips MCBU	**TVD Reference:**	RKB @ 3995.0ft (PD 822)
Project:	Buckeye	**MD Reference:**	RKB @ 3995.0ft (PD 822)
Site:	Ruby Federal	**North Reference:**	Grid
Well:	Ruby Federal 51	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Actual Plan		

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)
3,415.2	7.50	270.00	3,407.0	0.0	-136.3	136.3	0.00	0.00	0.00
Grayberg									
3,500.0	7.50	270.00	3,491.1	0.0	-147.4	147.4	0.00	0.00	0.00
3,600.0	7.50	270.00	3,590.2	0.0	-160.4	160.4	0.00	0.00	0.00
3,700.0	7.50	270.00	3,689.3	0.0	-173.5	173.5	0.00	0.00	0.00
3,800.0	7.50	270.00	3,788.5	0.0	-186.5	186.5	0.00	0.00	0.00
3,833.8	7.50	270.00	3,822.0	0.0	-191.0	191.0	0.00	0.00	0.00
San Andres									
3,900.0	7.50	270.00	3,887.6	0.0	-199.6	199.6	0.00	0.00	0.00
4,000.0	7.50	270.00	3,986.8	0.0	-212.6	212.6	0.00	0.00	0.00
4,100.0	7.50	270.00	4,085.9	0.0	-225.7	225.7	0.00	0.00	0.00
4,200.0	7.50	270.00	4,185.1	0.0	-238.8	238.8	0.00	0.00	0.00
4,300.0	7.50	270.00	4,284.2	0.0	-251.8	251.8	0.00	0.00	0.00
4,400.0	7.50	270.00	4,383.4	0.0	-264.9	264.9	0.00	0.00	0.00
4,500.0	7.50	270.00	4,482.5	0.0	-277.9	277.9	0.00	0.00	0.00
4,600.0	7.50	270.00	4,581.6	0.0	-291.0	291.0	0.00	0.00	0.00
4,700.0	7.50	270.00	4,680.8	0.0	-304.0	304.0	0.00	0.00	0.00
4,800.0	7.50	270.00	4,779.9	0.0	-317.1	317.1	0.00	0.00	0.00
4,900.0	7.50	270.00	4,879.1	0.0	-330.1	330.1	0.00	0.00	0.00
5,000.0	7.50	270.00	4,978.2	0.0	-343.2	343.2	0.00	0.00	0.00
5,100.0	7.50	270.00	5,077.4	0.0	-356.2	356.2	0.00	0.00	0.00
5,200.0	7.50	270.00	5,176.5	0.0	-369.3	369.3	0.00	0.00	0.00
5,287.2	7.50	270.00	5,263.0	0.0	-380.7	380.7	0.00	0.00	0.00
Glorieta									
5,300.0	7.50	270.00	5,275.7	0.0	-382.3	382.3	0.00	0.00	0.00
5,358.8	7.50	270.00	5,334.0	0.0	-390.0	390.0	0.00	0.00	0.00
Paddock									
5,360.8	7.50	270.00	5,335.9	0.0	-390.3	390.3	0.00	0.00	0.00
Ruby Federal (Alt. Top of Target)									
5,373.9	7.50	270.00	5,348.9	0.0	-392.0	392.0	0.00	0.00	0.00
Ruby Federal 51 (Top of Target)									
5,400.0	7.50	270.00	5,374.8	0.0	-395.4	395.4	0.00	0.00	0.00
5,500.0	7.50	270.00	5,473.9	0.0	-408.4	408.4	0.00	0.00	0.00
5,600.0	7.50	270.00	5,573.1	0.0	-421.5	421.5	0.00	0.00	0.00
5,700.0	7.50	270.00	5,672.2	0.0	-434.5	434.5	0.00	0.00	0.00
5,747.2	7.50	270.00	5,719.0	0.0	-440.7	440.7	0.00	0.00	0.00
Blinebry									
5,800.0	7.50	270.00	5,771.4	0.0	-447.6	447.6	0.00	0.00	0.00
5,900.0	7.50	270.00	5,870.5	0.0	-460.6	460.6	0.00	0.00	0.00
6,000.0	7.50	270.00	5,969.7	0.0	-473.7	473.7	0.00	0.00	0.00
6,100.0	7.50	270.00	6,068.8	0.0	-486.8	486.8	0.00	0.00	0.00
6,200.0	7.50	270.00	6,168.0	0.0	-499.8	499.8	0.00	0.00	0.00
6,300.0	7.50	270.00	6,267.1	0.0	-512.9	512.9	0.00	0.00	0.00
6,400.0	7.50	270.00	6,366.2	0.0	-525.9	525.9	0.00	0.00	0.00
6,500.0	7.50	270.00	6,465.4	0.0	-539.0	539.0	0.00	0.00	0.00
6,600.0	7.50	270.00	6,564.5	0.0	-552.0	552.0	0.00	0.00	0.00
6,700.0	7.50	270.00	6,663.7	0.0	-565.1	565.1	0.00	0.00	0.00
6,800.0	7.50	270.00	6,762.8	0.0	-578.1	578.1	0.00	0.00	0.00
6,804.2	7.50	270.00	6,767.0	0.0	-578.7	578.7	0.00	0.00	0.00
Tubb									
6,900.0	7.50	270.00	6,862.0	0.0	-591.2	591.2	0.00	0.00	0.00
6,992.9	7.50	270.00	6,954.1	0.0	-603.3	603.3	0.00	0.00	0.00

Database:	EDM Central Planning	**Local Co-ordinate Reference:**	Well Ruby Federal 51
Company:	ConocoPhillips MCBU	**TVD Reference:**	RKB @ 3995.0ft (PD 822)
Project:	Buckeye	**MD Reference:**	RKB @ 3995.0ft (PD 822)
Site:	Ruby Federal	**North Reference:**	Grid
Well:	Ruby Federal 51	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Actual Plan		

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)
Ruby Federal 51 (BHL)									
6,996.0	7.50	270.00	6,957.1	0.0	-603.7	603.7	0.00	0.00	0.00
Production									
7,000.0	7.50	270.00	6,961.1	0.0	-604.2	604.2	0.00	0.00	0.00
7,005.9	7.50	270.00	6,967.0	0.0	-605.0	605.0	0.00	0.00	0.00
TD - Ruby Federal 51 (Alt. BHL)									

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Ruby Federal 51 (Alt. BH	0.00	0.00	6,967.0	0.0	-605.0	665,440.59	666,391.92	32° 49' 41.559 N	103° 47' 29.954 W
- plan hits target center - Point									
Ruby Federal (Alt. Top o	0.00	0.00	5,334.0	0.0	-405.0	665,440.59	666,591.92	32° 49' 41.548 N	103° 47' 27.611 W
- plan misses target center by 14.9ft at 5360.8ft MD (5335.9 TVD, 0.0 N, -390.3 E) - Point									
Ruby Federal 51 (BHL)	0.00	0.00	6,967.0	0.0	-505.0	665,440.59	666,491.92	32° 49' 41.554 N	103° 47' 28.782 W
- plan misses target center by 99.1ft at 6992.9ft MD (6954.1 TVD, 0.0 N, -603.3 E) - Circle (radius 150.0)									
Ruby Federal 51 (Top of	0.00	0.00	5,334.0	0.0	-505.0	665,440.59	666,491.92	32° 49' 41.554 N	103° 47' 28.782 W
- plan misses target center by 114.0ft at 5373.9ft MD (5348.9 TVD, 0.0 N, -392.0 E) - Circle (radius 150.0)									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
80.0	80.0	Conductor	16	20
736.0	736.0	Surface	8-5/8	12-1/4
6,996.0	6,957.1	Production	5-1/2	7-7/8

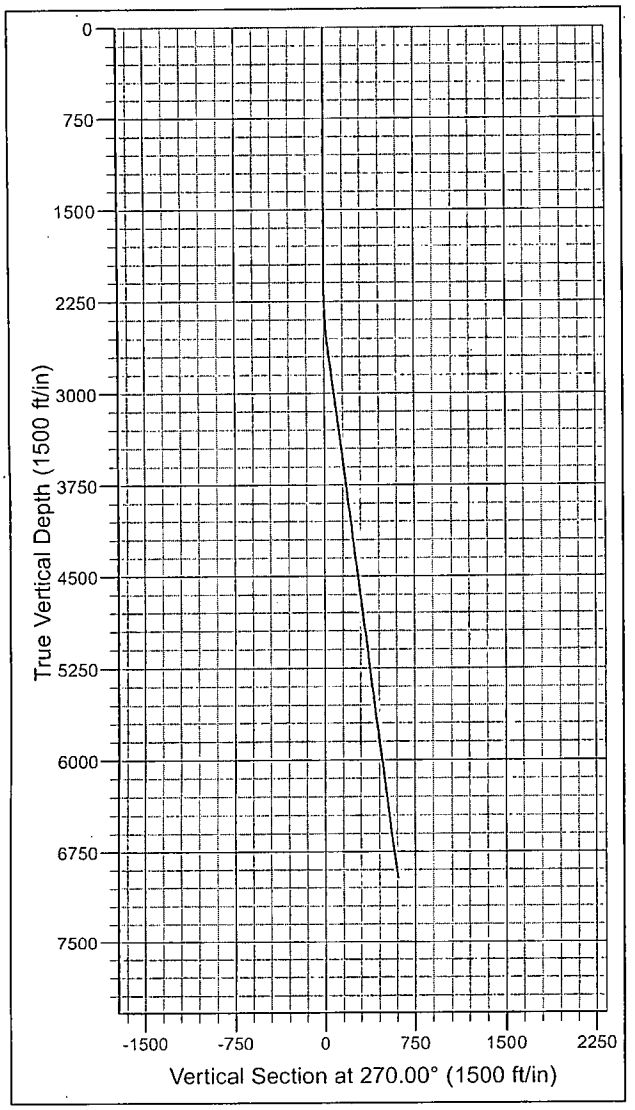
Database:	EDM Central Planning	**Local Co-ordinate Reference:**	Well Ruby Federal 51
Company:	ConocoPhillips MCBU	**TVD Reference:**	RKB @ 3995.0ft (PD 822)
Project:	Buckeye	**MD Reference:**	RKB @ 3995.0ft (PD 822)
Site:	Ruby Federal	**North Reference:**	Grid
Well:	Ruby Federal 51	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Actual Plan		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
711.0	711.0	Rustler		0.00	
5,287.2	5,263.0	Glorieta		0.00	
7,005.9	6,967.0	TD		0.00	
2,395.2	2,395.0	Seven Rivers		0.00	
885.0	885.0	Salado		0.00	
6,804.2	6,767.0	Tubb		0.00	
5,747.2	5,719.0	Blinebry		0.00	
3,003.7	2,999.0	Queen		0.00	
1,899.0	1,899.0	Tansill		0.00	
2,032.0	2,032.0	Yates		0.00	
3,833.8	3,822.0	San Andres		0.00	
5,358.8	5,334.0	Paddock		0.00	
3,415.2	3,407.0	Grayberg		0.00	

ConocoPhillips

Proposed Directional Well Plan



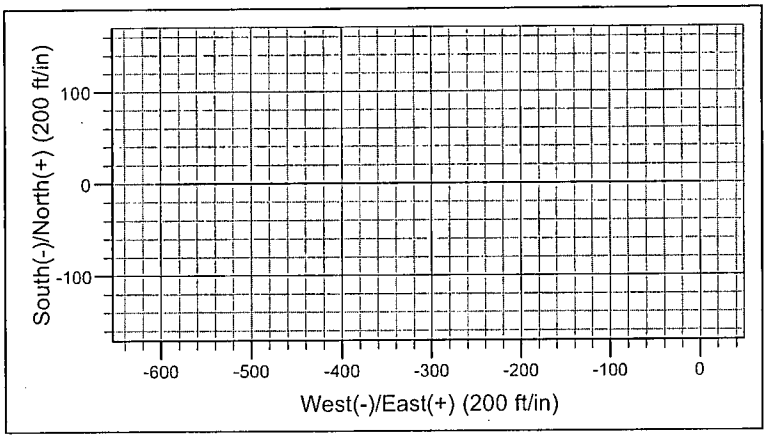
Project: Buckeye
Site: Ruby Federal
Well: Ruby Federal 51
Wellbore: Original Hole
Design: Actual Plan

WELL DETAILS: Ruby Federal 51

+N/-S	+E/-W	Ground Level: 3982.0 Northing	Easting	Latittude	Longitude
0.0	0.0	665440.59	666996.92	32° 49' 41.528 N	103° 47' 22.864 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2121.2	0.00	0.00	2121.2	0.0	0.0	0.00	0.00	0.0	
3	2621.2	7.50	270.00	2619.8	0.0	-32.7	1.50	270.00	32.7	
4	7005.9	7.50	270.00	6967.0	0.0	-605.0	0.00	0.00	605.0	Ruby Federal 51 (Alt. BHL)

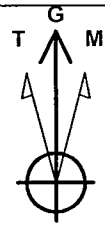


CASING DETAILS

TVD	MD	Name	Size
80.0	80.0	Conductor	16
736.0	736.0	Surface	8-5/8
6957.1	6996.0	Production	5-1/2

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
711.0	711.0	Rustler
885.0	885.0	Salado
1899.0	1899.0	Tansill
2032.0	2032.0	Yates
2395.0	2395.2	Seven Rivers
2999.0	3003.7	Queen
3407.0	3415.2	Grayberg
3822.0	3833.8	San Andres
5263.0	5287.2	Glorieta
5334.0	5358.8	Paddock
5719.0	5747.2	Blinebry
6767.0	6804.2	Tubb
6967.0	7005.9	TD



Azimuths to Grid North
True North: -0.29°
Magnetic North: 7.41°

Magnetic Field
Strength: 48838.6snT
Dip Angle: 60.65°
Date: 7/13/2012
Model: BGGM2012

Company: COPC
Well: Ruby Fed 51
Disk file: Ruby Fed 51_B_H.rsdx
Comment: New Drill with S

User: Nixon
Date: 7/18/2012

INPUT DATA

Strokes per minute:	8	Fluid level	
Run time (hrs/day):	24.0	(ft from surface):	6622
Tubing pres. (psi):	50	(ft over pump):	0
Casing pres. (psi):	50	Stuf.box fr. (lbs):	100
		Pol. Rod Diam: 1.5"	

Fluid properties

Water cut:	90%
Water sp. gravity:	1.05
Oil API gravity:	38.0
Fluid sp. gravity:	1.0285

Motor & power meter

Power Meter	Detent
Electr. cost:	$.06/KWH
Type:	NEMA D
Size:	60 hp

Pumping Unit: Lufkin Conventional - New (C-912D-36*)

API size: C-912-365-168 (unit ID: CL5)	
Crank hole number	#1 (out of 4)
Calculated stroke length (in):	169.8
Crank Rotation with well to right:	CCW
Max. CB moment (M in-lbs):	Unknown
Structural unbalance (lbs):	-1500
Crank offset angle (deg):	0.0

Tubing and pump information

Tubing O.D. (ins)	2.875	Upstr. rod-fl. damp. coeff:	0.100
Tubing I.D. (ins):	2.441	Dnstr. rod-fl. damp. coeff:	0.100
Pump depth (ft):	6622	Tub.anch.depth (ft):	5325
Pump condition:	Full		
Pump type:	Insert	Pump vol. efficiency :	90%
Plunger size (ins)	1.75	Pump friction (lbs):	200.0

Rod string design (rod tapers calculated)

Diameter (inches)	Rod Grade	Length (ft)	Min. Tensile Strength (psi)	Fric. Coeff
0.875	Norris 97	2647	140000	0.2
0.75	Norris 97	3700	140000	0.2
@ 1.5	Norris C (sb)	275	90000	0.2

CALCULATED RESULTS

Production rate (bfpd):	379	Peak pol. rod load (lbs):	25408
Oil production (BOPD):	38	Min. pol. rod load (lbs):	6620
Strokes per minute:	8	MPRL/PPRL	0.261
System eff. (Motor->Pump):	42%	Unit struct. loading:	70%
Permissible load HP:	90.1	PRHP / PLHP	0.34
Fluid load on pump (lbs):	7055	Buoyant rod weight (lbs):	11805
Fluid level TVD (ft from surface):	6586	N/No: .198 , Fo/SKr:	.211
Polished rod HP:	30.3		

Prime mover speed variation

Speed variation not considered

Torque analysis and electricity consumption — BALANCED (Min Torq)

Peak g'box torq.(M in-lbs):	876
Gearbox loading:	96%
Cyclic load factor:	1.6
Max. CB moment (M in-lbs):	1495.96
Counterbalance effect (lbs):	17130
Daily electr.use (KWH/day):	810
Monthly electric bill:	$1482
Electr.cost per bbl. fluid:	$0.128
Electr.cost per bbl. oil:	$1.283

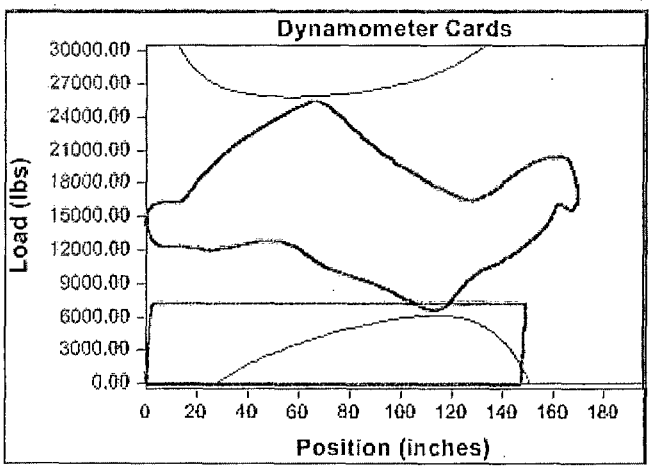
Tubing, pump and plunger calculations

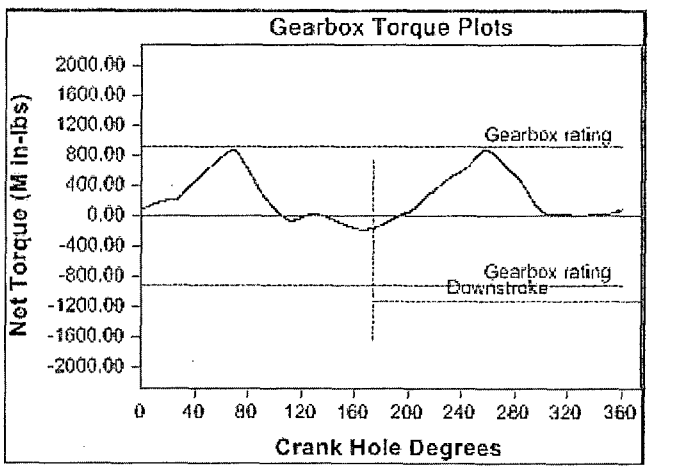
Tubing stretch (ins):	2.0
Prod. loss due to tubing stretch (bfpd):	5.1
Gross pump stroke (ins):	149.3
Pump spacing (in. from bottom):	19.9
Minimum pump length (ft):	22.0
Recommended plunger length (ft):	5.0

Rod string stress analysis (service factor: 1)

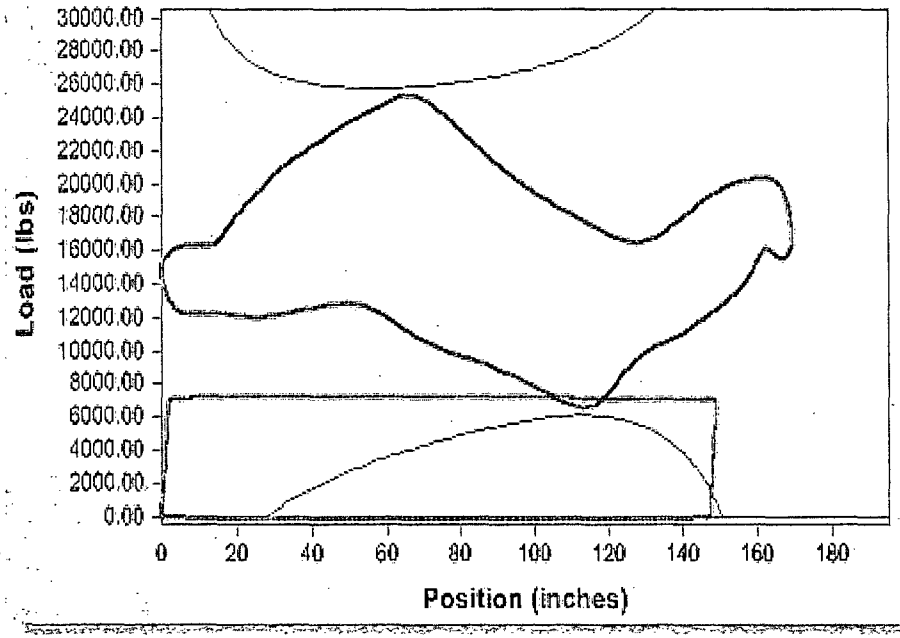
Stress Load %	Top Maximum Stress (psi)	Top Minimum Stress (psi)	Bot. Minimum Stress (psi)	Stress Calc. Method
71%	41705	10863	5393	API MG T/2.8
72%	39639	6935	46	API MG T/2.8
47%	10697	26	-428	API MG

@ Stress calculations based on elevator neck of 7/8" (for 1.25" sinker bars) or 1" (for other sinker bars).
NOTE Stress calculations do not include buoyancy effects.



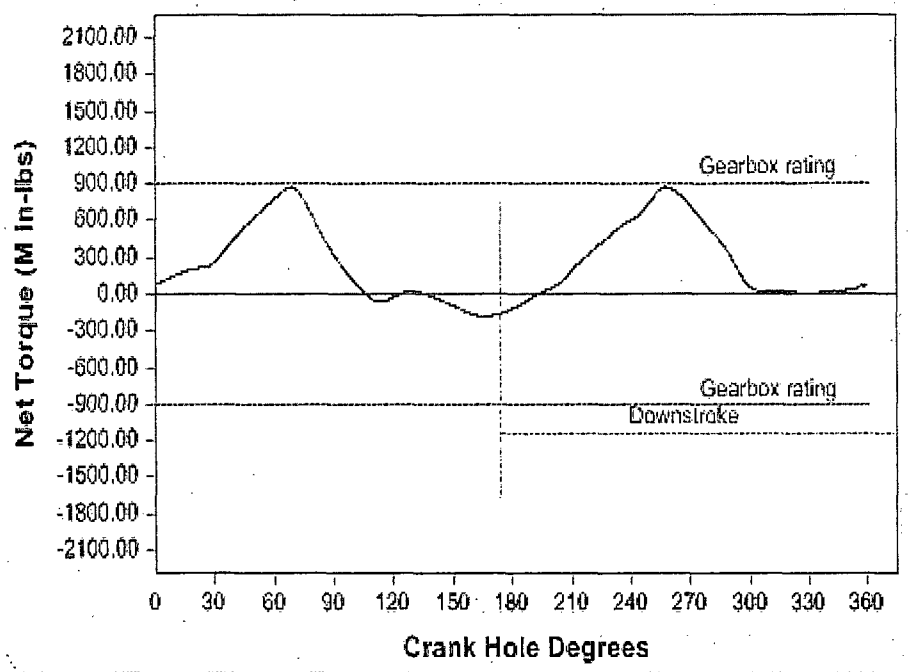


Dynamometer Cards



— Surface dynamometer Card — Downhole dynamometer card
— Permissible load diagram

Gearbox Torque Plots



— Balanced

ROD STRING COST ANALYSIS

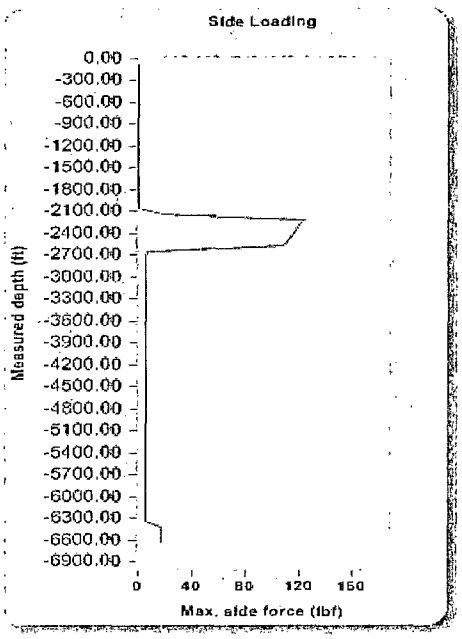
Diameter (inches)	Rod Grade	Length (ft)	Cost ($/ft)	Total Cost ($)
0.875	Norris 97	2647	N/A	N/A
0.75	Norris 97	3700	N/A	N/A
1.5	Norris C (sb)	275	N/A	N/A

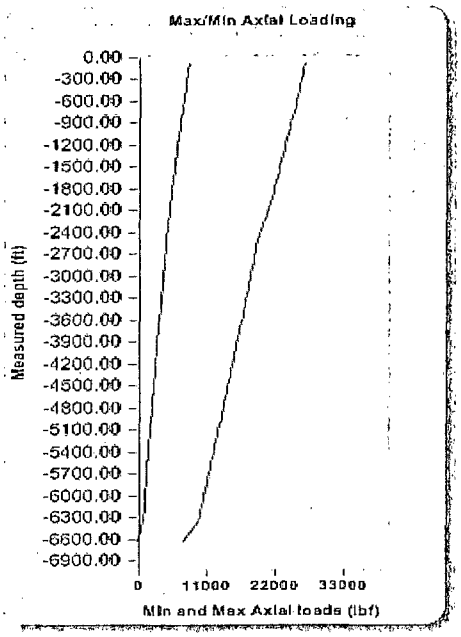
Total ($): N/A

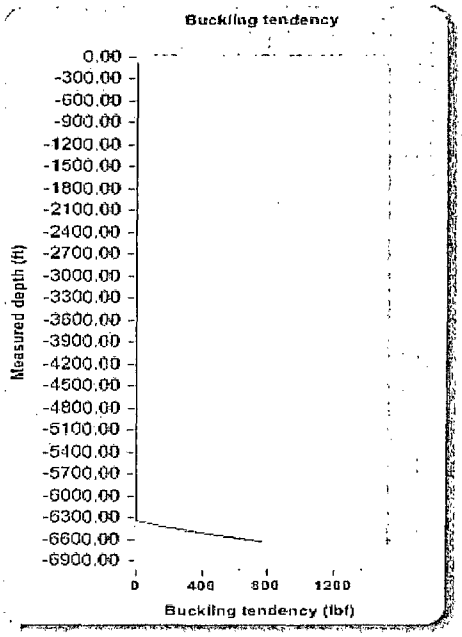
PUMPING UNIT COST ANALYSIS

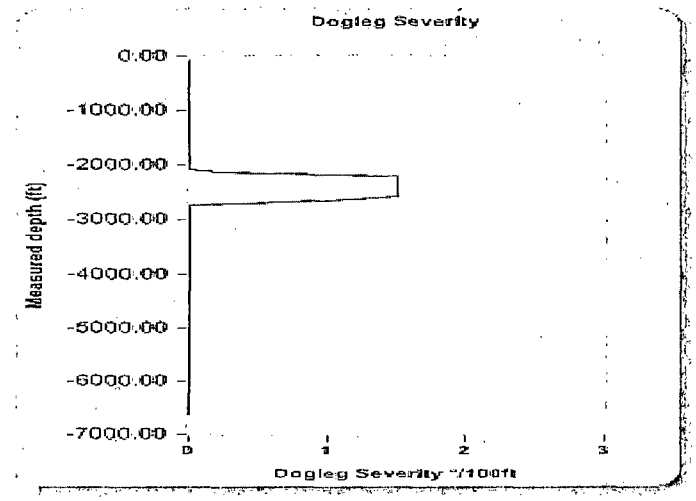
Lufkin Conventional - New
C-912-365-168
C-912D-365-168

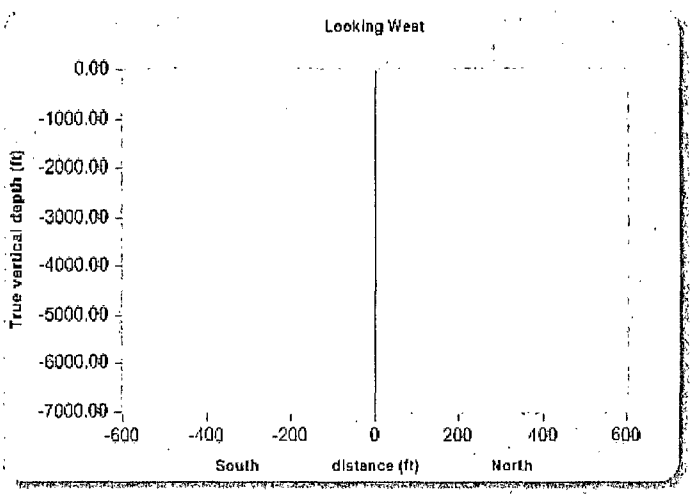
Total ($): N/A

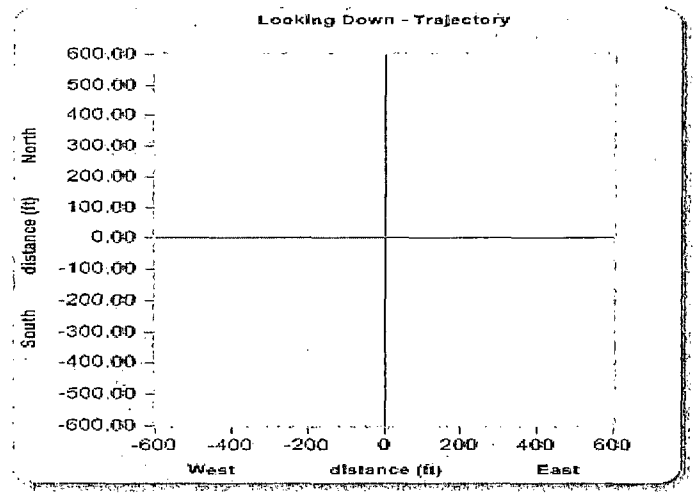

Side Loading
Measured depth (ft)
0.00
-300.00
-600.00
-900.00
-1200.00
-1500.00
-1800.00
-2100.00
-2400.00
-2700.00
-3000.00
-3300.00
-3600.00
-3900.00
-4200.00
-4500.00
-4800.00
-5100.00
-5400.00
-5700.00
-6000.00
-6300.00
-6600.00
-6900.00
0
40
80
120
160
Max. side force (lbf)

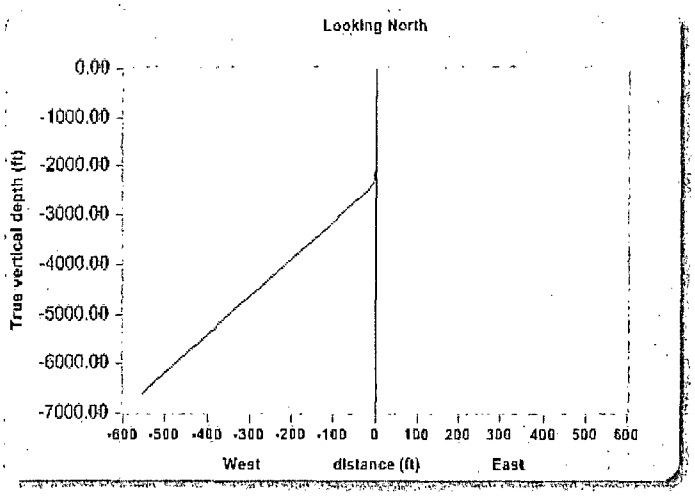

Max/Min Axial Loading
Measured depth (ft)
0.00
-300.00
-600.00
-900.00
-1200.00
-1500.00
-1800.00
-2100.00
-2400.00
-2700.00
-3000.00
-3300.00
-3600.00
-3900.00
-4200.00
-4500.00
-4800.00
-5100.00
-5400.00
-5700.00
-6000.00
-6300.00
-6600.00
-6900.00
0
11000
22000
33000
Min and Max Axial loads (lbf)


Buckling tendency
Measured depth (ft)
0.00
-300.00
-600.00
-900.00
-1200.00
-1500.00
-1800.00
-2100.00
-2400.00
-2700.00
-3000.00
-3300.00
-3600.00
-3900.00
-4200.00
-4500.00
-4800.00
-5100.00
-5400.00
-5700.00
-6000.00
-6300.00
-6600.00
-6900.00
0
400
800
1200
Buckling tendency (lbf)


Dogleg Severity
Measured depth (ft)
0.00
-1000.00
-2000.00
-3000.00
-4000.00
-5000.00
-6000.00
-7000.00
0
1
2
3
Dogleg Severity °/100ft


Looking West
True vertical depth (ft)
0.00
-1000.00
-2000.00
-3000.00
-4000.00
-5000.00
-6000.00
-7000.00
-600
-400
-200
0
200
400
600
South
distance (ft)
North


Looking Down - Trajectory
South distance (ft) North
600.00
500.00
400.00
300.00
200.00
100.00
0.00
-100.00
-200.00
-300.00
-400.00
-500.00
-600.00
-600
-400
-200
0
200
400
600
West
distance (ft)
East


Looking North
True vertical depth (ft)
0.00
-1000.00
-2000.00
-3000.00
-4000.00
-5000.00
-6000.00
-7000.00
-600
-500
-400
-300
-200
-100
0
100
200
300
400
500
600
West
distance (ft)
East

Company: COPC
Well: Ruby Fed 51
Disk file: Ruby Fed 51_B_H.rsdx
Comment: New Drill with S

User: Nixon
Date: 7/18/2012

Recommended Guide Report

Depth ft	Max Side Load lbs/25 ft	Guides Type	Guides Number
2200	65.22	Molded	** 2
2225	124.06	Molded	4
2250	124.06	Molded	4
2275	122.34	Molded	4
2300	120.74	Molded	4
2325	120.74	Molded	4
2350	118.87	Molded	3
2375	117.62	Molded	3
2400	117.62	Molded	3
2425	115.56	Molded	3
2450	114.6	Molded	3
2475	114.6	Molded	3
2500	112.33	Molded	3
2525	111.62	Molded	3
2550	111.62	Molded	3
2575	109.11	Molded	3
2600	108.63	Molded	3
2625	108.63	Molded	3

** - The manufacturer recommends a minimum of (3) rod guides per rod.

Company: COPC
Well: Ruby Fed 51
Disk file: Ruby Fed 51_B_H.rsdx
Comment: New Drill with S

Measured Deviation Survey

MD (ft)	Inclination (°)	Azimuth (°)	Dogleg sev. °/100ft	TVD (ft)	N-S (ft)	E-W (ft)
0	0	0	0	0	0	0
2121.21	0	0	0	2121.21	0	0
2200	1.182	270	1.5	2199.99	0	-.81
2300	2.682	270	1.5	2299.93	0	-4.18
2400	4.182	270	1.5	2399.75	0	-10.17
2499.99	5.682	270	1.5	2499.37	0	-18.77
2599.99	7.182	270	1.5	2598.74	0	-29.97
2621.21	7.5	270	1.5	2619.78	0	-32.68
2699.99	7.5	270	0	2697.89	0	-42.96
2799.99	7.5	270	0	2797.03	0	-56.02
2899.99	7.5	270	0	2896.18	0	-69.07
2999.99	7.5	270	0	2995.32	0	-82.12
3099.99	7.5	270	0	3094.47	0	-95.17
3199.99	7.5	270	0	3193.61	0	-108.23
3299.99	7.5	270	0	3292.76	0	-121.28
3399.99	7.5	270	0	3391.9	0	-134.33
3499.99	7.5	270	0	3491.05	0	-147.38
3599.99	7.5	270	0	3590.19	0	-160.44
3699.99	7.5	270	0	3689.33	0	-173.49
3799.99	7.5	270	0	3788.48	0	-186.54
3899.99	7.5	270	0	3887.62	0	-199.59
3999.99	7.5	270	0	3986.77	0	-212.65
4099.99	7.5	270	0	4085.91	0	-225.7
4199.99	7.5	270	0	4185.06	0	-238.75
4299.99	7.5	270	0	4284.2	0	-251.8
4399.99	7.5	270	0	4383.35	0	-264.86
4499.99	7.5	270	0	4482.49	0	-277.91
4599.99	7.5	270	0	4581.63	0	-290.96
4699.99	7.5	270	0	4680.78	0	-304.01
4799.99	7.5	270	0	4779.92	0	-317.07
4899.99	7.5	270	0	4879.07	0	-330.12
4999.99	7.5	270	0	4978.21	0	-343.17
5099.99	7.5	270	0	5077.36	0	-356.23
5199.99	7.5	270	0	5176.5	0	-369.28
5299.99	7.5	270	0	5275.65	0	-382.33

Company: COPC
Well: Ruby Fed 51
Disk file: Ruby Fed 51_B_H.rsdx
Comment: New Drill with S

User: Nixon
Date: 7/18/2012

Measured Deviation Survey

MD (ft)	Inclination (°)	Azimuth (°)	Dogleg sev. °/100ft	TVD (ft)	N-S (ft)	E-W (ft)
5399.99	7.5	270	0	5374.79	0	-395.38
5499.99	7.5	270	0	5473.94	0	-408.44
5599.99	7.5	270	0	5573.08	0	-421.49
5699.99	7.5	270	0	5672.22	0	-434.54
5799.99	7.5	270	0	5771.37	0	-447.59
5899.99	7.5	270	0	5870.51	0	-460.65
5999.99	7.5	270	0	5969.66	0	-473.7
6099.99	7.5	270	0	6068.8	0	-486.75
6199.99	7.5	270	0	6167.95	0	-499.8
6299.99	7.5	270	0	6267.09	0	-512.86
6399.99	7.5	270	0	6366.24	0	-525.91
6499.99	7.5	270	0	6465.38	0	-538.96
6599.99	7.5	270	0	6564.52	0	-552.01
6699.99	7.5	270	0	6663.67	0	-565.07
6799.99	7.5	270	0	6762.81	0	-578.12
6899.99	7.5	270	0	6861.96	0	-591.17
6999.99	7.5	270	0	6961.1	0	-604.23
7005.94	7.5	270	0	6967	0	-605

Request for Variance

ConocoPhillips Company
Lease Number: LC 029405B
Well: Ruby Federal #51
Location: UL N, Sec. 17, T17S, R32E; 330' FSL and 2155' FWL
Date: 09-18-12

Request:

ConocoPhillips Company respectfully requests a variance to install a flexible choke line instead of a straight choke line prescribed in the Onshore Order No. 2, III.A.2.b Minimum standards and enforcement provisions for choke manifold equipment. This request is made under the provision of Onshore Order No. 2, IV Variances from Minimum Standard. The rig to be used to drill this well is equipped with a flexible choke line if the requested variance is approved and determined that the proposed alternative meets the objectives of the applicable minimum standards.

Justifications:

The applicability of the flexible choke line will reduce the number of target tees required to make up from the choke valve to the choke manifold. This configuration will facilitate ease of rig up and BOPE Testing.

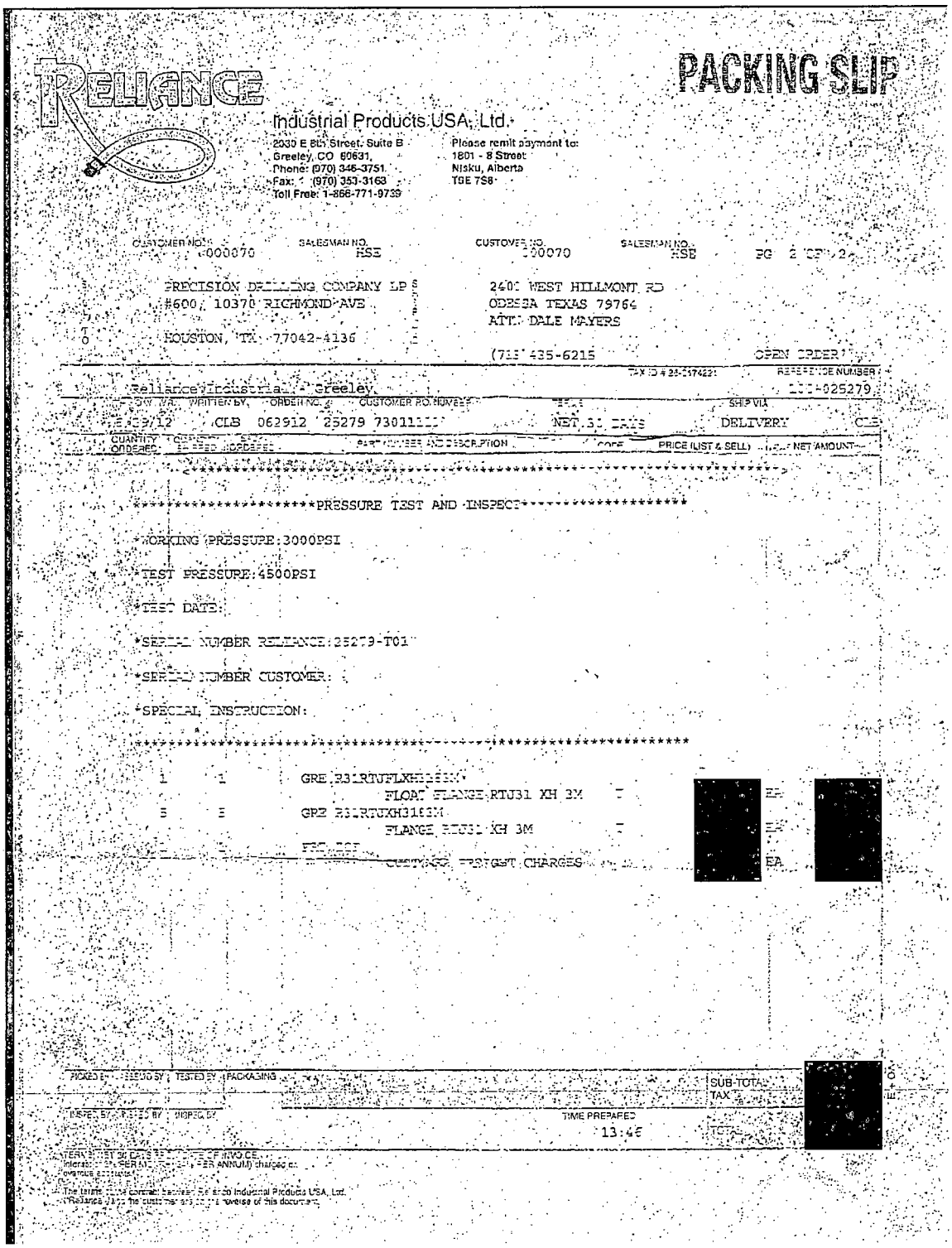
Attachments:

- Attachment # 1 Mill Certification
- Attachment # 2 Specification
- Attachment # 3 Certified & Signed Pressure Test from Manufacturer

Contact Information:

Program prepared by:
James Chen
Drilling Engineer, ConocoPhillips Company
Phone (832) 486-2184
Cell (832) 768-1647
Date: 18 September 2012

Attachment # 1



RELIANCE

PACKING SLIP

Industrial Products USA, Ltd.

2930 E 8th Street, Suite B
Greeley, CO 80631,
Phone: (970) 346-3751
Fax: (970) 353-3163
Toll Free: 1-866-771-9739

Please remit payment to:
1801 - 8 Street
Nisku, Alberta
T9E 7S6

CUSTOMER NO. 000070 SALESMAN NO. RSE | CUSTOMER NO. 000070 SALESMAN NO. RSE PG 2 OF 2

PRECISION DRILLING COMPANY LP
#600, 10370 RICHMOND AVE
HOUSTON, TX 77042-4136

2401 WEST HILLMONT RD
ODESSA TEXAS 79764
ATTN: DALE MAYERS
(713) 435-6215

OPEN ORDER

TAX ID # 25-0174221 REFERENCE NUMBER 1001-025279

Reliance Industrial - Greeley

SW VIA	WRITTEN BY	ORDER NO.	CUSTOMER PO NUMBER	TERMS	SHIP VIA
6/29/12	CLB	062912	25279 730111117	NET 31 DAYS	DELIVERY CLB

QUANTITY ORDERED	QUANTITY SHIPPED	PART NUMBER AND DESCRIPTION	CODE	PRICE (LIST & SELL)	NET AMOUNT
		**********			
		**********PRESSURE TEST AND INSPECT**********			
		*WORKING PRESSURE:3000PSI			
		*TEST PRESSURE:4500PSI			
		*TEST DATE:			
		*SERIAL NUMBER RELIANCE:25279-T01			
		*SERIAL NUMBER CUSTOMER:			
		*SPECIAL INSTRUCTION:			
		**********			
1	1	GRE R31RTUFLXH3161M FLOAT FLANGE RTU31 XH 3M	T	[redacted] EA	[redacted]
5	5	GRE R31RTUXH3161M FLANGE RTU31 XH 3M	T	EA	
		FSC TEST CUSTOMER FREIGHT CHARGES		EA	

PICKED BY ISSUED BY TESTED BY PACKAGING SUB-TOTAL [redacted]
TAX
DATE SHIPPED INSPECTED BY TIME PREPARED 13:46 TOTAL

TERMS: NET 30 DAYS FROM DATE OF INVOICE
Interest: 2% PER MONTH (24% PER ANNUM) charged on overdue accounts.

The terms and conditions of sale of Reliance Industrial Products USA, Ltd. ("Reliance") are the conditions on the reverse of this document.

Attachment # 2

RELIANCE
Industrial Products USA, Ltd.

RELIANCE

Reliance Eliminator Choke & Kill
3000 PSI

This hose can be used as a choke hose which connects the BOP stack to the bleed-off manifold or a kill hose which connects the mud stand pipe to the BOP kill valve.

The Reliance Eliminator Choke & Kill hose contains a specially bonded compounded cover that replaces rubber covered Asbestos, Fibreglass and other fire retardant materials which are prone to damage. This high cut and gouge resistant cover overcomes costly repairs and downtime associated with older designs.

Nom. ID		Nom OD		Weight		Min Bend Radius		Max WP	
in.	mm.	in.	mm	lb/ft	kg/m	in.	mm.	psi	Mpa
3	76.2	4.53	115.06	8.99	13.31	30	762.0	3000	20.68
3-1/2	88.9	5.00	127	11.01	16.29	36	914.4	3000	20.68

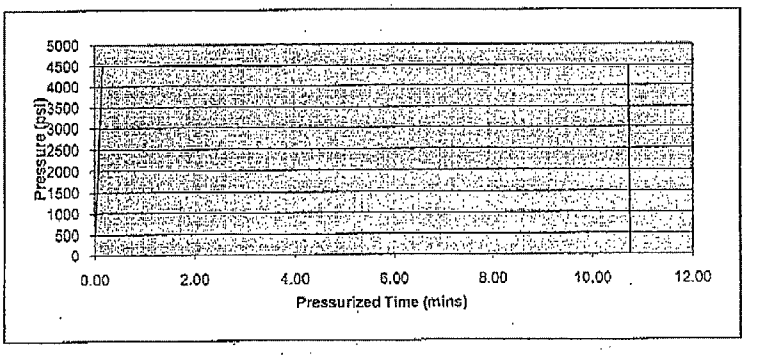
Fittings	Flanges	Hammer Unions	Other
RC4X5055	R35 - 3-1/8 5000# API Type 6B	All Union Configurations	LP Threaded Connection
RC3X5055	R31 - 3-1/8 3000# API Type 6B		Grayloc
RC4X5575			Custom Ends

Attachment # 3

RELIANCE
Industrial Products USA, Ltd.
2030 E. 8th Street, Suite B • Greeley, CO 80631
Ph: (970) 346-3751 • Fax: (970) 353-3168 • *Toll Free:* (866) 771-9739

TEST CERTIFICATE

Customer:	PERCISION DRILLING	Cert No.:	25279TO1
P.O. #:	73011111	Date:	6/29/2912
Invoice #:	25279		
Material:	3 1/2" FIRE GUARD		
Description:	2" X 30'		
Coupling 1:	FLOATING FLANGE		
" Serial:			
" Quality:			
Coupling 2:	FLANGE		
" Serial:			
" Quality:			
Working Pressure :	3000		
Test Pressure:	4500		
Duration (mins):	10		

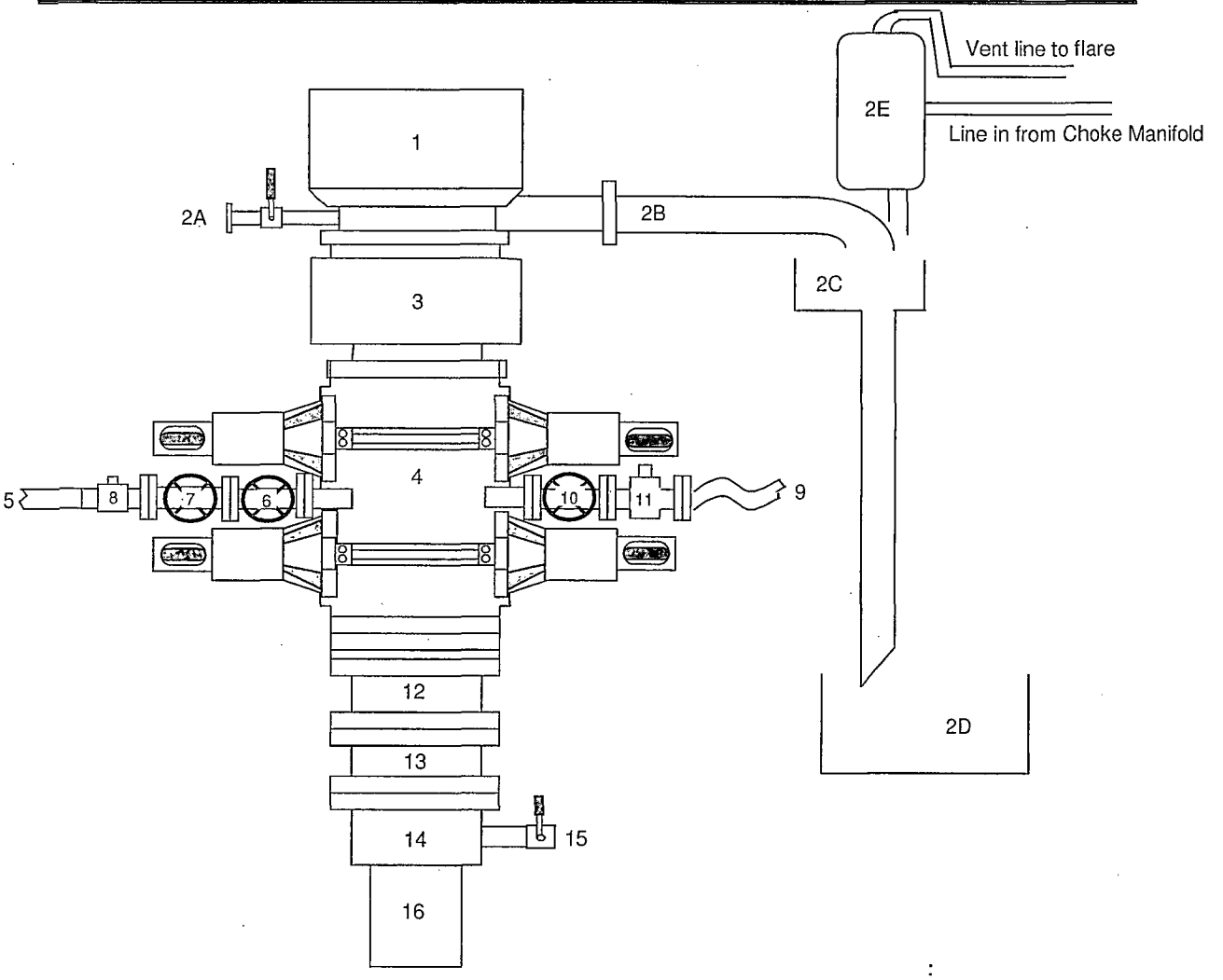


Conducted By: FLORES M.
Test Technician

☑ Acceptable
☐ Not Acceptable

BLOWOUT PREVENTER ARRANGEMENT

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

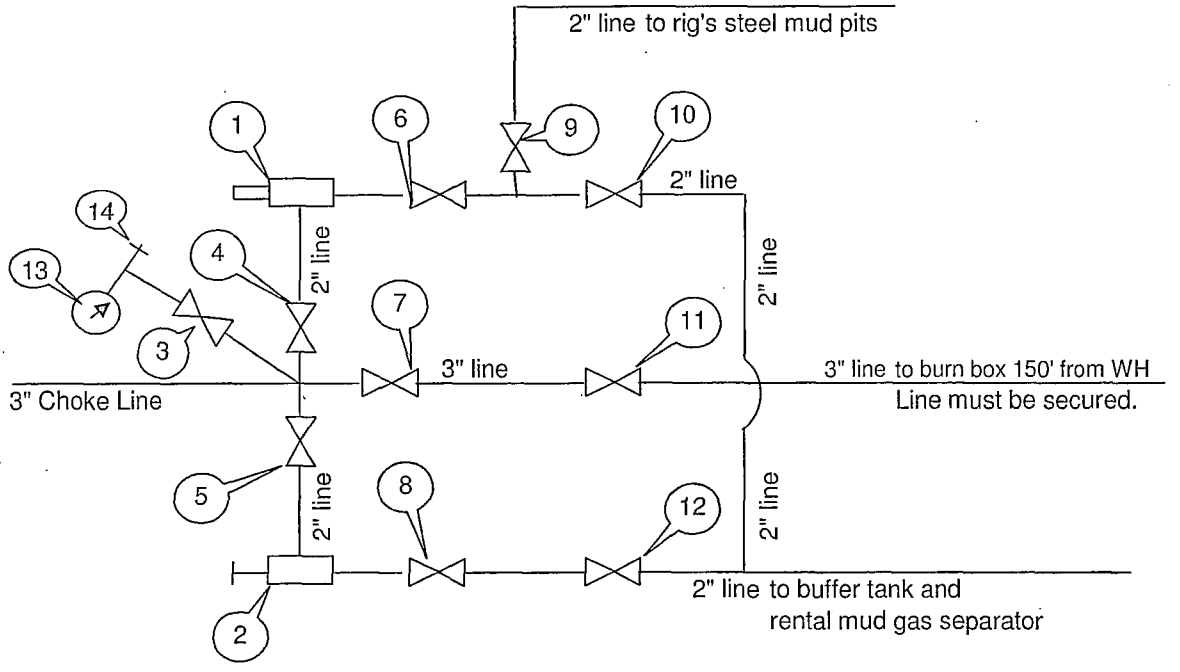


Item	Description
1	Rotating Head, 11"
2A	Fill up Line and Valve
2B	Flow Line (10")
2C	Shale Shakers and Solids Settling Tank
2D	Cuttings Bins for Zero Discharge
2E	Rental Mud Gas Separator with vent line to flare and return line to mud system
3	Annular BOP (11", 3M)
4	Double Ram (11", 3M, equipped with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

Submitted by: James Chen, Drilling Engineer, Mid-Continent Business Unit, ConocoPhillips Company, 14-Sept-2012

CHOKE MANIFOLD ARRANGEMENT

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



All Tees must be targeted

Item	Description
1	Remote Controlled Hydraulically Operated 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

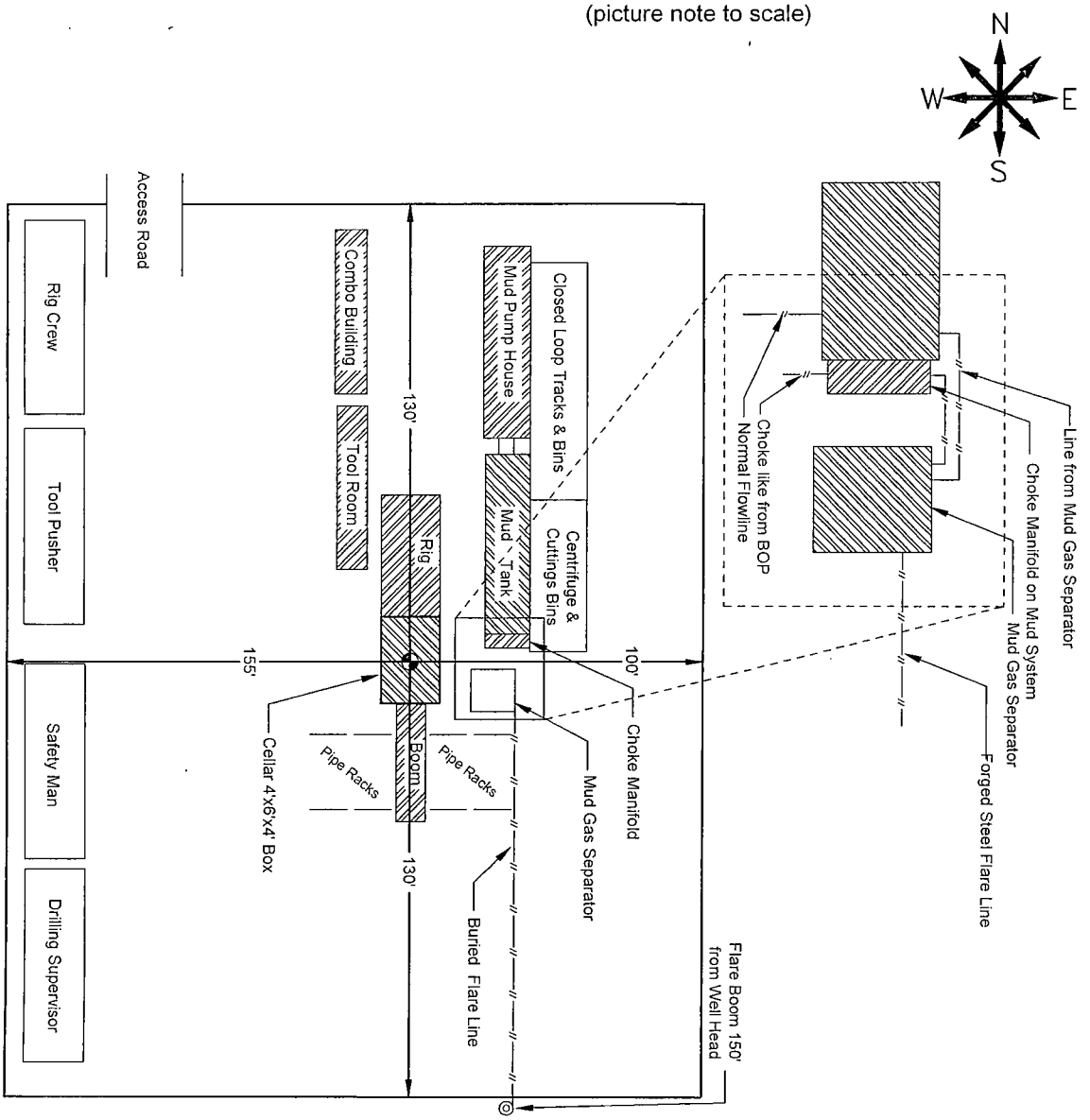
We will test each valve to 3000 psi from the upstream side.

Drawn by:
Steven O. Moore
Chief Drilling Engineer, Mid-Continent Business Unit, ConocoPhillips Company
Date: 14-Sept-2012

RIG LAYOUT

Locaton Schematic and Rig Layout
for Closed Loop System

(picture note to scale)



RUBY FEDERAL #51
Located 330' FSL and 2155' FWL
Section 17, Township 17 South, Range 32 East, N.M.P.M., Lea County, New Mexico.

Basin Surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number:	JMS 26900
Survey Date:	07-09-2012
Scale:	1" = NONE
Date:	07-11-2012

ConocoPhillips

Closed Loop System Design, Operating and Maintenance, and Closure Plan

ConocoPhillips Company
Well: Ruby Federal #51
Location: Sec. 17, T17S, R32E
Date: 08-10-12

ConocoPhillips proposes the following plan for design, operating and maintenance, and closure of our proposed closed loop system for the above named well:

1. We propose to use a closed loop system with steel pits, haul-off bins, and frac tanks for containing all cuttings, solids, mud, water, brine, and liquids. We will not dig a pit, nor will we use a drying pad, nor will we build an earth pit above ground level, nor will we dispose of or bury any waste on location.

   All drilling waste and all drilling fluids (fresh water, brine, mud, cuttings, drill solids, cement returns, and any other liquid or solid that may be involved) will be contained on location in the rig's steel pits or in haul-off bins or in frac tanks as needed. The intent is as follows:

   - We propose to use the rigs' steel pits for containing and maintaining the drilling fluids.
   - We propose to remove cuttings and drilled solids from the mud by using solids control equipment and to contain such cuttings and drilled solids on location in haul-off bins.
   - We propose that any excess water that may need to be stored on location will be stored in tanks.

The closed loop system components will be inspected daily by each tour and any need repairs will be made immediately. Any leak in the system will be repaired immediately, and any spilled liquids and/or solids will be cleaned immediately, and the area where any such spill occurred will be remediated immediately.

2. Cuttings and solids will be removed from location in haul-off bins by an authorized contractor and disposed of at an authorized facility. For this well, we propose the following disposal facility:

   Controlled Recovery Inc,
   4507 West Carlsbad Hwy, Hobbs, NM 88240,
   P.O. Box 388; Hobbs, New Mexico 88241
   Toll Free Phone: 877.505.4274, Local Phone Number: 432.638.4076

   The physical address for the plant where the disposal facility is located is Highway 62/180 at mile marker 66 (33 miles East of Hobbs, NM and 32 miles West of Carlsbad, NM).

   The Permit Number for CRI is R9166

   A photograph showing the type of haul-off bins that will be used is attached.

3. Mud will be transported by vacuum truck and disposed of at Controlled Recovery Inc at the facility described above.

4. Fresh Water and Brine will be hauled off by vacuum truck and disposed of at an authorized salt water disposal well. We propose the following for disposal of fresh water and brine as needed:

   - Nabors Well Services Company, 3221 NW County Rd; Hobbs, NM 88240, PO 5208 Hobbs, NM, 88241, Permit SWD 092. (Well Location: **Section 3, T19S R37E**)

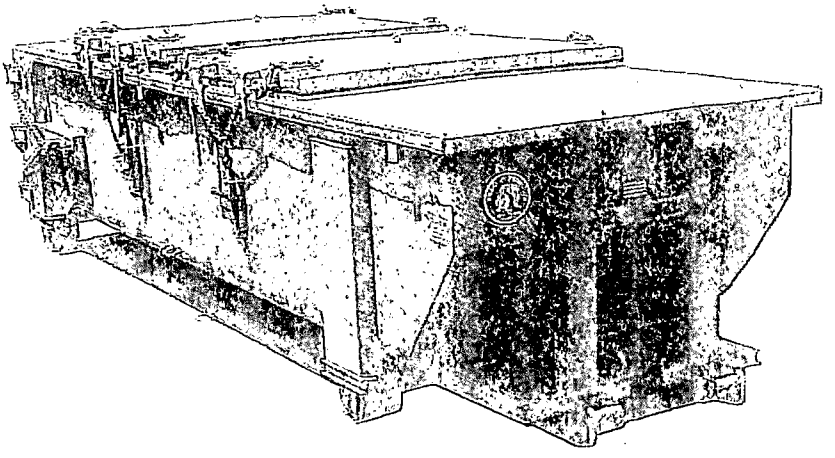
   - Basic Energy Services, P.O. Box 1869; Eunice, NM 88231 Phone Number: 575.394.2545, Facility located at Hwy 18, Mile Marker 19; Eunice, NM.

James Chen
Drilling Engineer
Office: 832.486.2184
Cell: 832.678.1647

SPECIFICATIONS

FLOOR: 3/16" PL one piece
CROSS MEMBER: 3 x 4.1 channel 16" on center
WALLS: 3/16" PL solid welded with tubing top, inside liner hooks
DOOR: 3/16" PL with tubing frame
FRONT: 3/16" PL slant formed
PICK UP: Standard cable with 2" x 6" x 1/4" rails, gusset at each crossmember
WHEELS: 10 DIA x 9 long with rease fittings
DOOR LATCH: 3 independent ratchet binders with chains, vertical second latch
GASKETS: Extruded rubber seal with metal retainers
WELDS: All welds continuous except sub-structure crossmembers
FINISH: Coated inside and out with direct to metal, rust inhibiting acrylic enamel color coat
HYDROTESTING: Full capacity static test
DIMENSIONS: 22'-11" long (21'-8" inside), 99" wide (88" inside), see drawing for height
OPTIONS: Steel grit blast and special paint, Ampliroll, Heil and Dino pickup
ROOF: 3/16" PL roof panels with tubing and channel support frame
LIDS: (2) 68" x 90" metal rolling lids spring loaded, self raising
ROLLERS: 4" V-groove rollers with delrin bearings and grease fittings
OPENING: (2) 60" x 82" openings with 8" divider centered on container
LATCH: (2) independent ratchet binders with chains per lid
GASKETS: Extruded rubber seal with metal retainers

Heavy Duty Split Metal Rolling Lid



CONT.	A	B
20 YD	41	53
25 YD	53	65
30 YD	65	77