

ConocoPhillips MCBU

Permian Hz Bonespring/Avalon

Buck Federal 20

Buck Federal 20

Buck Federal 20 #1H

Plan: Plan BLM

Standard Planning Report

21 November, 2011

ConocoPhillips or its affiliates

Planning Report

Database:	EDM Central Planning	Local Co-ordinate Reference:	Well Buck Federal 20
Company:	ConocoPhillips MCBU	TVD Reference:	WELL @ 3206.0ft (Original Well Elev)
Project:	Permian Hz Bonespring/Avalon	MD Reference:	WELL @ 3206.0ft (Original Well Elev)
Site:	Buck Federal 20	North Reference:	True
Well:	Buck Federal 20	Survey Calculation Method:	Minimum Curvature
Wellbore:	Buck Federal 20 #1H		
Design:	Plan BLM		

Project:	Permian Hz Bonespring/Avalon		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Texas South Central 4204		

Site:	Buck Federal 20		
Site Position:		Northing:	m
From:	None	Easting:	m
Position Uncertainty:	0.0 ft	Slot Radius:	in
		Latitude:	
		Longitude:	
		Grid Convergence:	0.00 °

Well:	Buck Federal 20		
Well Position	+N/-S	0.0 ft	Northing: 0.00 m
	+E/-W	0.0 ft	Easting: 0.00 m
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	27° 41' 16.664 N
		Longitude:	105° 10' 51.259 W
		Ground Level:	3,184.0ft

Wellbore:	Buck Federal 20 #1H		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2011	6/21/2011	7.92	55.41	45,610

Design:	Plan BLM		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0.0	0.0	0.0
			Direction
			(°)
			180.00

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,650.0	3.96	180.00	8,649.9	-5.2	0.0	2.64	2.64	0.00	180.00	
9,695.0	90.24	180.00	9,295.9	-700.4	0.0	8.26	8.26	0.00	0.00	
14,050.0	89.60	180.00	9,301.9	-5,055.4	0.0	0.01	-0.01	0.00	-180.00	

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Site:	Buck Federal 20	North Reference:	True
Well:	Buck Federal 20	Survey Calculation Method:	Minimum Curvature
Wellbore Design:	Buck Federal 20 #1H Plan BLM		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

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Well:	Buck Federal 20	Survey Calculation Method:	Minimum Curvature
Wellbore:	Buck Federal 20 #1H		
Design:	Plan BLM		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	2.64	180.00	8,600.0	-2.3	0.0	2.3	2.64	2.64	0.00
8,650.0	3.96	180.00	8,649.9	-5.2	0.0	5.2	2.64	2.64	0.00
8,700.0	8.09	180.00	8,699.6	-10.4	0.0	10.4	8.25	8.25	0.00
8,800.0	16.34	180.00	8,797.3	-31.6	0.0	31.6	8.26	8.26	0.00
8,900.0	24.60	180.00	8,890.9	-66.5	0.0	66.5	8.26	8.26	0.00
9,000.0	32.86	180.00	8,978.5	-114.6	0.0	114.6	8.26	8.26	0.00
9,100.0	41.11	180.00	9,058.3	-174.7	0.0	174.7	8.26	8.26	0.00
9,200.0	49.37	180.00	9,128.6	-245.6	0.0	245.6	8.26	8.26	0.00
9,300.0	57.63	180.00	9,188.1	-325.9	0.0	325.9	8.26	8.26	0.00
9,400.0	65.88	180.00	9,235.3	-414.0	0.0	414.0	8.26	8.26	0.00
9,500.0	74.14	180.00	9,269.5	-507.8	0.0	507.8	8.26	8.26	0.00
9,600.0	82.40	180.00	9,289.8	-605.7	0.0	605.7	8.26	8.26	0.00
9,695.0	90.24	180.00	9,295.9	-700.4	0.0	700.4	8.26	8.26	0.00
9,700.0	90.24	180.00	9,295.9	-705.4	0.0	705.4	0.01	-0.01	0.00
9,800.0	90.23	180.00	9,295.5	-805.4	0.0	805.4	0.01	-0.01	0.00
9,900.0	90.21	180.00	9,295.1	-905.4	0.0	905.4	0.01	-0.01	0.00
10,000.0	90.20	180.00	9,294.7	-1,005.4	0.0	1,005.4	0.01	-0.01	0.00
10,100.0	90.18	180.00	9,294.4	-1,105.4	0.0	1,105.4	0.01	-0.01	0.00
10,200.0	90.17	180.00	9,294.1	-1,205.4	0.0	1,205.4	0.01	-0.01	0.00
10,300.0	90.15	180.00	9,293.8	-1,305.4	0.0	1,305.4	0.01	-0.01	0.00
10,400.0	90.14	180.00	9,293.6	-1,405.4	0.0	1,405.4	0.01	-0.01	0.00

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Wellbore:	Buck Federal 20 #1H		
Design:	Plan BLM		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,500.0	90.12	180.00	9,293.3	-1,505.4	0.0	1,505.4	0.01	-0.01	0.00
10,600.0	90.11	180.00	9,293.1	-1,605.4	0.0	1,605.4	0.01	-0.01	0.00
10,700.0	90.09	180.00	9,293.0	-1,705.4	0.0	1,705.4	0.01	-0.01	0.00
10,800.0	90.08	180.00	9,292.8	-1,805.4	0.0	1,805.4	0.01	-0.01	0.00
10,900.0	90.06	180.00	9,292.7	-1,905.4	0.0	1,905.4	0.01	-0.01	0.00
11,000.0	90.05	180.00	9,292.6	-2,005.4	0.0	2,005.4	0.01	-0.01	0.00
11,100.0	90.03	180.00	9,292.5	-2,105.4	0.0	2,105.4	0.01	-0.01	0.00
11,200.0	90.02	180.00	9,292.5	-2,205.4	0.0	2,205.4	0.01	-0.01	0.00
11,300.0	90.00	180.00	9,292.5	-2,305.4	0.0	2,305.4	0.01	-0.01	0.00
11,400.0	89.99	180.00	9,292.5	-2,405.4	0.0	2,405.4	0.01	-0.01	0.00
11,500.0	89.98	180.00	9,292.5	-2,505.4	0.0	2,505.4	0.01	-0.01	0.00
11,600.0	89.96	180.00	9,292.5	-2,605.4	0.0	2,605.4	0.01	-0.01	0.00
11,700.0	89.95	180.00	9,292.6	-2,705.4	0.0	2,705.4	0.01	-0.01	0.00
11,800.0	89.93	180.00	9,292.7	-2,805.4	0.0	2,805.4	0.01	-0.01	0.00
11,900.0	89.92	180.00	9,292.9	-2,905.4	0.0	2,905.4	0.01	-0.01	0.00
12,000.0	89.90	180.00	9,293.0	-3,005.4	0.0	3,005.4	0.01	-0.01	0.00
12,100.0	89.89	180.00	9,293.2	-3,105.4	0.0	3,105.4	0.01	-0.01	0.00
12,200.0	89.87	180.00	9,293.4	-3,205.4	0.0	3,205.4	0.01	-0.01	0.00
12,300.0	89.86	180.00	9,293.7	-3,305.4	0.0	3,305.4	0.01	-0.01	0.00
12,400.0	89.84	180.00	9,293.9	-3,405.4	0.0	3,405.4	0.01	-0.01	0.00
12,500.0	89.83	180.00	9,294.2	-3,505.4	0.0	3,505.4	0.01	-0.01	0.00
12,600.0	89.81	180.00	9,294.5	-3,605.4	0.0	3,605.4	0.01	-0.01	0.00
12,700.0	89.80	180.00	9,294.9	-3,705.4	0.0	3,705.4	0.01	-0.01	0.00
12,800.0	89.78	180.00	9,295.2	-3,805.4	0.0	3,805.4	0.01	-0.01	0.00
12,900.0	89.77	180.00	9,295.6	-3,905.4	0.0	3,905.4	0.01	-0.01	0.00
13,000.0	89.75	180.00	9,296.0	-4,005.4	0.0	4,005.4	0.01	-0.01	0.00
13,100.0	89.74	180.00	9,296.5	-4,105.4	0.0	4,105.4	0.01	-0.01	0.00
13,200.0	89.73	180.00	9,296.9	-4,205.4	0.0	4,205.4	0.01	-0.01	0.00
13,300.0	89.71	180.00	9,297.4	-4,305.4	0.0	4,305.4	0.01	-0.01	0.00
13,400.0	89.70	180.00	9,297.9	-4,405.4	0.0	4,405.4	0.01	-0.01	0.00
13,500.0	89.68	180.00	9,298.5	-4,505.4	0.0	4,505.4	0.01	-0.01	0.00
13,600.0	89.67	180.00	9,299.1	-4,605.4	0.0	4,605.4	0.01	-0.01	0.00
13,700.0	89.65	180.00	9,299.7	-4,705.4	0.0	4,705.4	0.01	-0.01	0.00
13,800.0	89.64	180.00	9,300.3	-4,805.4	0.0	4,805.4	0.01	-0.01	0.00
13,900.0	89.62	180.00	9,300.9	-4,905.4	0.0	4,905.4	0.01	-0.01	0.00
14,000.0	89.61	180.00	9,301.6	-5,005.4	0.0	5,005.4	0.01	-0.01	0.00
14,050.0	89.60	180.00	9,301.9	-5,055.4	0.0	5,055.4	0.01	-0.01	0.00

DRILLING PLAN

PROSPECT/FIELD		Bonespring/Red Hills		COUNTY/STATE		Lea County, NM																																																										
OWNERS		BURLINGTON RESOURCES		LEASE																																																												
WELL NO.		Buck Federal 20 #1H		FNL		FSL																																																										
LOCATION		Surface Location		105		397																																																										
		Bottom Hole Location		330		397																																																										
EST. T.D.		Leg #1 14,050' MD		GROUND ELEV.		3,160' (est)																																																										
PROGNOSIS:		Based on 3,160' KB(est)		RKB		3183'																																																										
<table border="1"> <thead> <tr> <th>Marker</th> <th>S.S. Depth</th> <th>TVD</th> </tr> </thead> <tbody> <tr> <td>Quaternary</td> <td></td> <td>Surface</td> </tr> <tr> <td>Rustler</td> <td>2,412</td> <td>748</td> </tr> <tr> <td>Castile</td> <td>685</td> <td>2498</td> </tr> <tr> <td>Delaware Top</td> <td>-1,230</td> <td>4,292</td> </tr> <tr> <td>Ramsey</td> <td>-1,109</td> <td>4,373</td> </tr> <tr> <td>Ford Sand</td> <td>-1,260</td> <td>4,443</td> </tr> <tr> <td>Olids</td> <td>-1,265</td> <td>4,448</td> </tr> <tr> <td>Cherry Canyon Lower Top</td> <td>-3,362</td> <td>6,545</td> </tr> <tr> <td>Bone Spring</td> <td>-5,077</td> <td>8,226</td> </tr> <tr> <td>Bone Spring 1st Carbonate Top</td> <td>-5,311</td> <td>8,451</td> </tr> <tr> <td>Bone Spring 1st Carbonate Base</td> <td>-5,368</td> <td>8,528</td> </tr> <tr> <td>KOP (est)</td> <td>-5,402</td> <td>8,550</td> </tr> <tr> <td>Avalon A Shale Top</td> <td>-5,573</td> <td>8,726</td> </tr> <tr> <td>Avalon A Shale Base</td> <td>-5,803</td> <td>8,937</td> </tr> <tr> <td>Avalon B Zone Top</td> <td>-5,803</td> <td>8,937</td> </tr> <tr> <td>Avalon B Zone Base</td> <td>-5,927</td> <td>9,087</td> </tr> <tr> <td>Avalon C Shale Top</td> <td>-5,927</td> <td>9,087</td> </tr> <tr> <td>Avalon C Shale Base (Should not penetrate)</td> <td>-6,194</td> <td>9,349</td> </tr> </tbody> </table>		Marker	S.S. Depth	TVD	Quaternary		Surface	Rustler	2,412	748	Castile	685	2498	Delaware Top	-1,230	4,292	Ramsey	-1,109	4,373	Ford Sand	-1,260	4,443	Olids	-1,265	4,448	Cherry Canyon Lower Top	-3,362	6,545	Bone Spring	-5,077	8,226	Bone Spring 1st Carbonate Top	-5,311	8,451	Bone Spring 1st Carbonate Base	-5,368	8,528	KOP (est)	-5,402	8,550	Avalon A Shale Top	-5,573	8,726	Avalon A Shale Base	-5,803	8,937	Avalon B Zone Top	-5,803	8,937	Avalon B Zone Base	-5,927	9,087	Avalon C Shale Top	-5,927	9,087	Avalon C Shale Base (Should not penetrate)	-6,194	9,349	LOGS: 'Open Hole: GR-MWD		Type TC-S-SS-FMI		Interval 9,300' - 4,400' 14,050' - 8550'	
Marker	S.S. Depth	TVD																																																														
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		DEVIATION: Surf Int1/2 Prod		3" max., svy every 500' 3" max., svy every 90'																																																												
		DST'S:																																																														
		CORES: No core																																																														
		SAMPLES: Mudlogging Two-Man		Start 2,800'		End TD Vertical and Horizontal sections																																																										
		BOP. Nabors Rig M-09 BOPE (With Rotating Head)		COP Category 3 Well Control Requirements 13-5/8"-5Mpsi Annular (Hydri GK) 13-5/8"-5Mpsi Blind Ram (Cameron U) 13-5/8"-5Mpsi Cross / Choke & Kill Lines 13-5/8"-5M psi Pipe Ram (Cameron U) 13-5/8"-5Mpsi Spacer Spool																																																												
Dip Rate		(See inclination prediction)		0.65 psft																																																												
Max Anticipated BHP:				Surface Formation:																																																												
MUD:		Interval		Type		Max MW																																																										
Surface		0'-850'		Aqualog - Spud Mud		8.9																																																										
Intermediate 1		850'-4500'		Brine		10.1																																																										
Production		4500'-14050'		Cut Brine		10																																																										
						32-36																																																										
						28-30																																																										
						<=5																																																										
CASING:		Size		Hole		Depth																																																										
Surface		13-3/8"		17-1/2"		850'																																																										
Intermediate 1		9-5/8"		12-1/4"		4,500'																																																										
Production Lat #1		5-1/2"		8-3/4"		14,050'																																																										
						500' into intermediate																																																										
						24hrs																																																										
						Long String Liner Top @ KOP +/- 8500'																																																										
DIRECTIONAL PLAN		MD		TVD		AZ																																																										
Surface		N/A		N/A		180																																																										
Vertical KOP		8,500'		8,500'		180.0																																																										
End Build/ 7" Casing (90° curve)		9,695'		9,296'		180.0																																																										
Tangent		N/A		N/A		180.0																																																										
Turn		N/A		N/A		180.0																																																										
TD		14,050'		9,302'		180.0																																																										
Comments:																																																																
Surveys will be taken at 90° interval below surface casing while drilling with PDC / Motor / MWD.																																																																
Prep By:		Luis Serrano		Date:		11/22/11																																																										
				Doc:		REV 0																																																										

uck Federal 20 #1H

urface Location

Formation

105

397

330

Bottom Hole Location

397

SAP Network*

Inv. Handler ID:

TBA

Drilling

TBA

Completion/Facility

TBA

Total

\$0

Permit:

NDIC #

TBA

API #

TBA

ACE#

TBA

Directional	MD	TVD	FINLFSL	FELFWL	S-T-R	AZI
Vertical KOP	8500	8500	0	0	0	180
End Builder 7" Casing (90° curve)	9,695'	9,296'	0	0	0	180.0
Tangent	N/A	N/A	0	0	0	180.0
Turn	N/A	N/A	0	0	0	180.0
TD	14,650'	9,302'	0	0	0	180.9

Formation	IVD
Surface	7,418
uslifer	2,498
astile	4,292
elaware Top	4,373
amsey	4,443
3rd Sand	4,448
lds	6,545
herry Canyon Lower Top	8,226
one Spring 1st Carbonate Top	8,526
one Spring 1st Carbonate Base	8,526
OP (est)	8,526
valon A Shale Top	8,726
valon A Shale Base	8,837
valon B Zone Top	9,087
valon B Zone Base	9,087
valon C Shale Top	9,087
valon C Shale Base (Should not penetrate)	9,349

Drill Fluids	Cement	Analysis
Surf. Holes: FW gel mud 8 SW w/ High vis sweeps		
Interm.1 Brine 10 W 25-36 Vls 5-3 WL	Surfactant: 230 Sx Lead 870 Sx Tail Based on 17-1/2" OH, with 200% excess	Mudlogging: Two-Man 2,800' TD
Intermediate 4,500' - 40# L-30 BTC	Intermediate 1,200 Sx Lead 270 Sx Tail Based on 8 7/8 in. Hole with 150% excess	

Notes for Well:

1) Refer to the drilling program for detailed casing, drilling fluids, bit etc.
2) Mud logger (two-man) to be on at surface casing depth of 2,800'
3) The curve will be drilled with 8 2 deg/100' build rate 180 Azimuth
4) Begin LWD GR service after KOP 4 8500'
5) Run 8-3/4" 40# L-30 BTC from surface to Intermediate Section TD @ 4500'
6) Drill 5-3/4" hole to KOP at 8500'
7) Pick off and drill curve to 9,302' TD
8) Run 5-1/2" Lateral Assy and drill lateral as per the plan to TD at 14,650'
9) No DGS
10) If required, run 6-1/8" lateral in preparation for running 5 1/2" casing
11) Run 5 1/2" Casing to TD
12) Cement casing as per the plan, leaving at least 500' overlapped with the 9-5/8"
13) Displace cement with water containing 2% KCL
14) POOH laying down pipe
15) NO ROPE. Install 10M Lubing head. Test connection
16) Release drilling rig

Production
14,695' MD, 5,475' TVD @ 9.10 BTC
3,102' TVD

Prod. Holes:	Shury Top
Cuttings 10# 25-36 Vls ≤5 WL high vis sweeps as required	500' into 5-5/8" 9,300' - 4,400' GR-MWD 14,050' - 8550'
	Cased Hole Loss: None

Max Anticipated BHP	0.65 psi/ft	TD @ 14,050' MD 9,302' TVD
---------------------	-------------	-------------------------------

Vick Harvey

Geologist

Date

Luis Serrano

Drilling Engineer

Date

0

Surface Casing:

Surface Casing Depth (Ft) 850
Surface Casing O.D. (In.) 13.375
Surface Casing ID (In) 12.715
Hole O.D. (In) 17.5
Excess (%) 200%

Volume Tail (Sx)

Yield Tail (Cu. Ft./Sx) 1.85
Yield Lead (Cu. Ft./Sx) 1.33
Shoe Joint (Ft) 40
Shoe Volume (Cu. Ft) 35.3
Tail feet of cement 300
Calculated Total Volume (Cu. Ft.) 1,598
Calc. Tail Volume (Cu. Ft.) 417
Calc. Lead Volume (Cu. Ft.) 1,146
Calc. Lead Volume (Sx) 870

Intermediate1 Casing (Lead):

Intermediate Casing O.D. (In.) 9.625
Intermediate Casing ID (In) 8.835
Hole O.D. (In) 12.25
Excess (%) 150%
cap 12-1/4 - 9-5/8" 0.0558
Calculated fill: 3,800'

Yield Lead (Cu. Ft./Sx) 2.48

Calculated Total Lead (Cu. Ft.) 2,975

Calc. Lead Volume (Sx)

1200

Intermediate1 Casing (Tail):

Intermediate Casing O.D. (In.) 9-5/8" 8.835
Production Casing ID (In) 12.25
Hole O.D. (In) 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) 4.982
Hole O.D. (In) 8.75
Excess (%) 150%
cap 5-1/2" - 8-3/4" bis/ft 0.0450
cap 5-1/2 - 9-5/8" bis/ft 0.0408
Calculated fill: (500' into 9-5/8") 7,050'
Yield Lead (Cu. Ft./Sx) 2.0

Calculated Total Lead (Cu. Ft.) 2,671

Calc. Lead Volume (Sx)

1340

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" bis/ft 0.0450
cap 7 - 9-5/8" bis/ft
Calculated fill: 3,500'
Yield Lead (Cu. Ft./Sx) 1.2

Calculated Total Tail (Cu. Ft.) 1,326

Required Tail Volume (Sx)

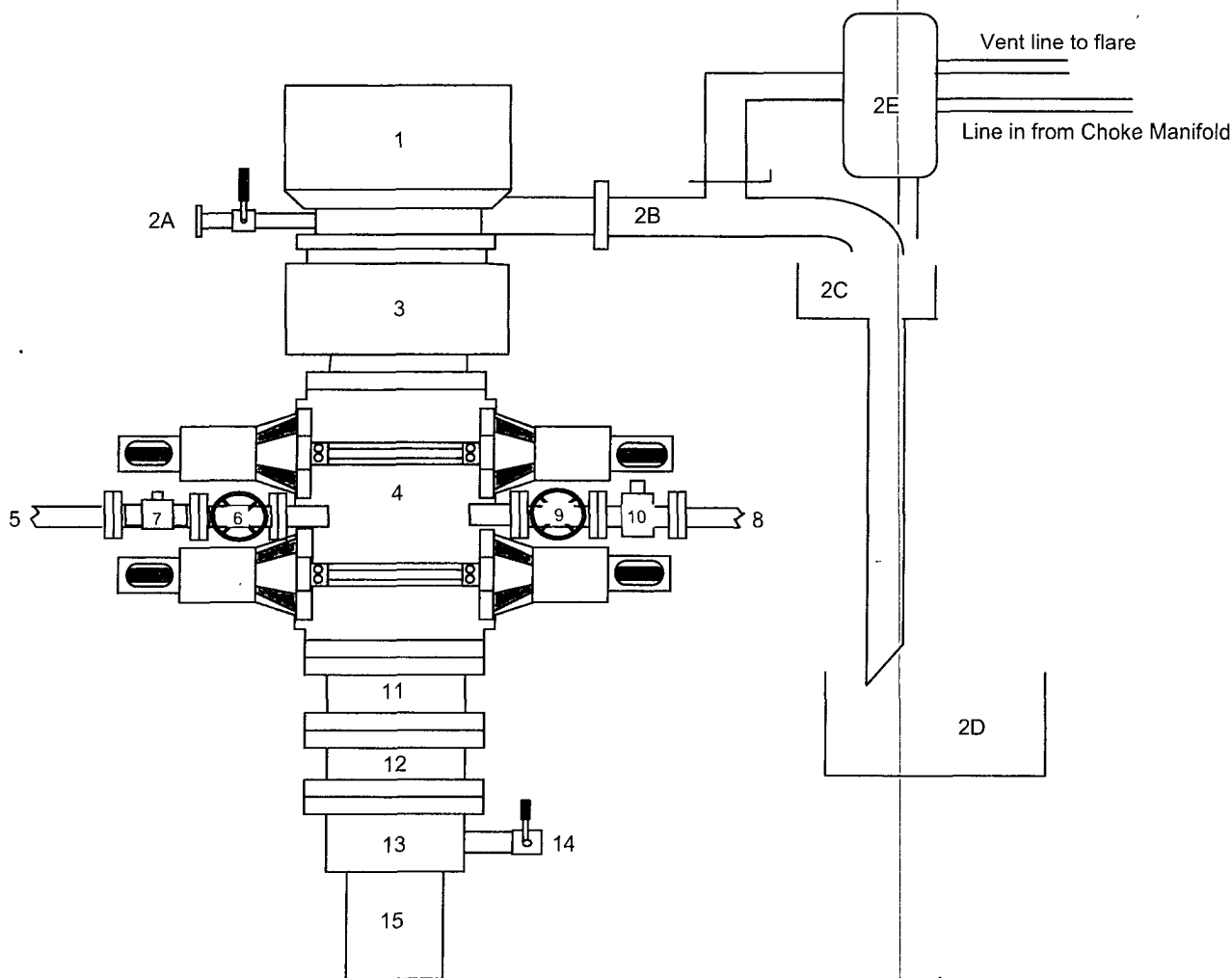
1105

4050

7850

BLOWOUT PREVENTER ARRANGEMENT

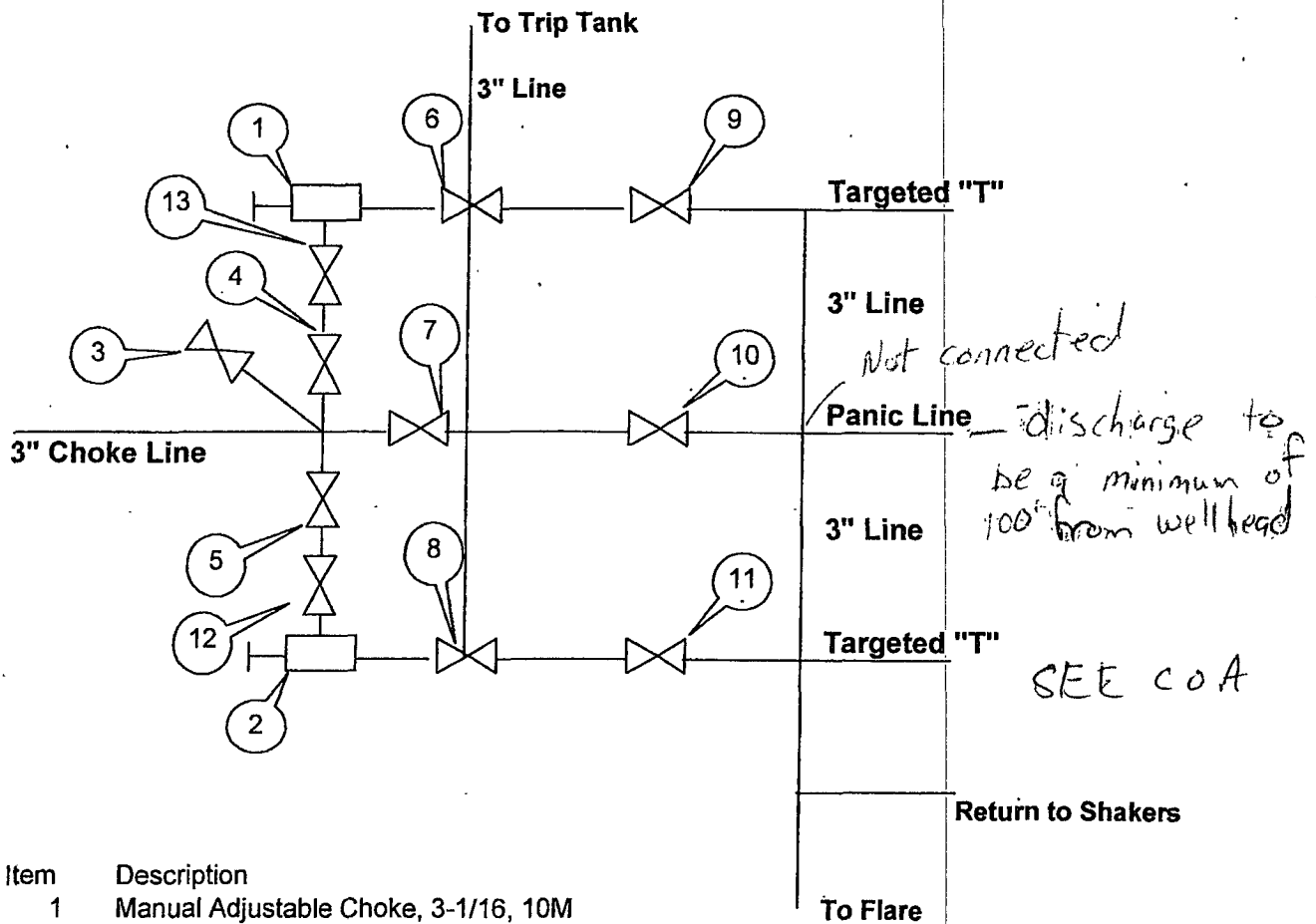
3M System per Onshore Oil and Gas Order No. 2 utilizing 5M Rated Equipment



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" chcksan, 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

1/24/2012
Tamm

CHOKE MANIFOLD ARRANGEMENT



Item	Description
1	Manual Adjustable Choke, 3-1/16, 10M
2	Manual Adjustable Choke, 3-1/16, 10M
3	Gate Valve, 3-1/16 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, 3-1/8" 5M
8	Gate Valve, 3-1/16 10M
9	Gate Valve, 3-1/16 10M
10	Gate Valve, 3-1/8" 10M
11	Gate Valve, 3-1/16 5M
12	Gate Valve, 3-1/16 10M
13	Gate Valve, 3-1/16 10M

Drawn by:
 Steven O. Moore
 Chief Drilling Engineer, Mid-Continent Business Unit, ConocoPhillips Company
 Edited by L. Serrano Dec 09 2011

MUST COMPLY WITH
 ONSHORE OIL AND GAS ORDER 2
 AND API RP 53 SEC 17.

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:	<u>OK</u>
(B) EXTERIOR / COVER / BRANDING:	<u>OK</u>
(C) INTERIOR TUBE:	<u>OK</u>

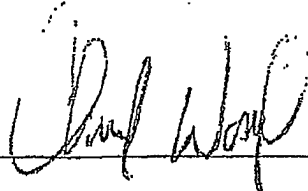
HYDROSTATIC TEST

5 MIN. @ 10,000 PSI

2 MIN. @ 0 PSI 25' 3" OAL

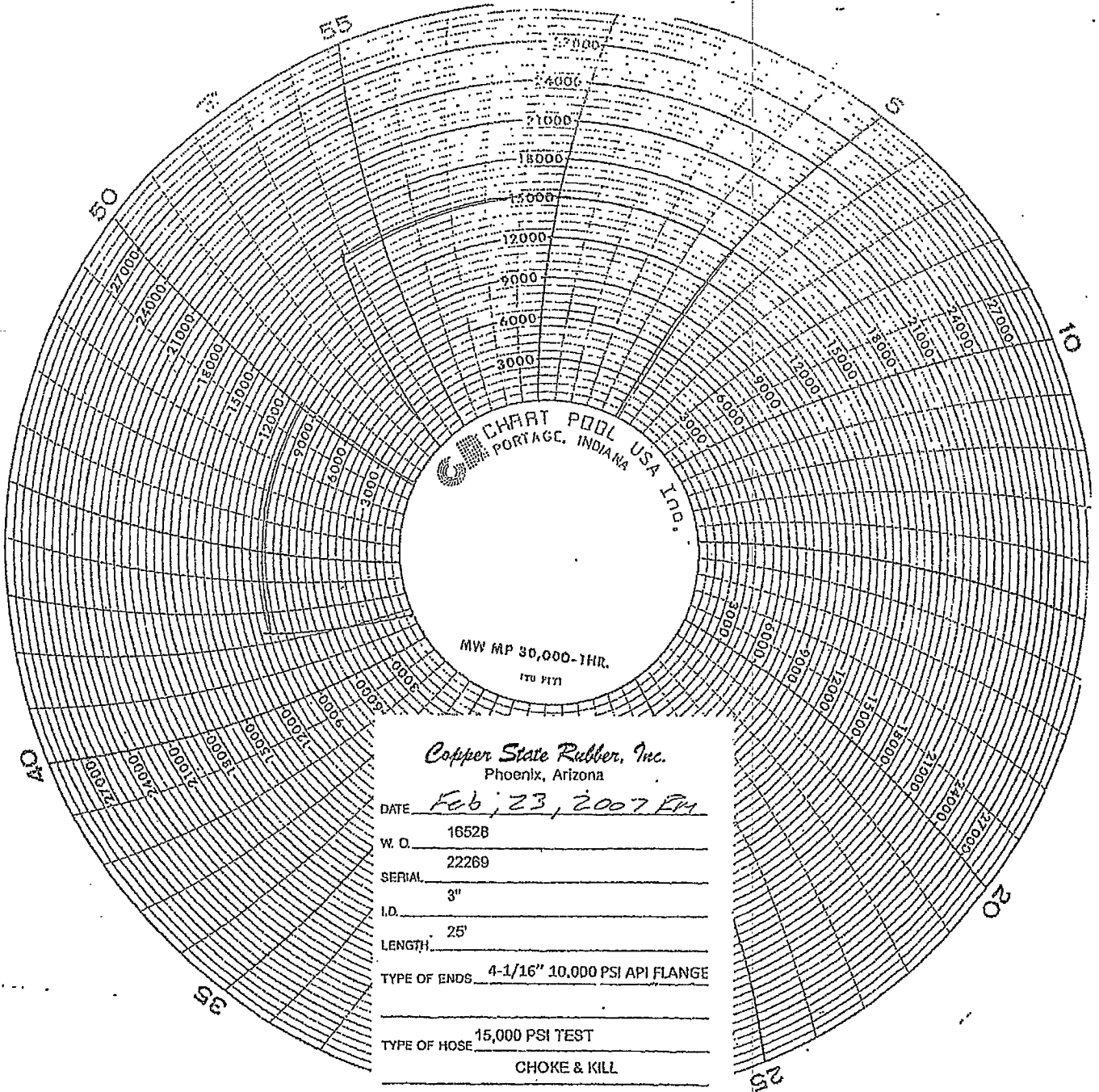
3 MIN. @ 15,000 PSI

WITNESSED BY:



DATE

February 23, 2007



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

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

Well: Buck Federal 20 #1H

Date: December 5, 2011

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 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's 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 a fresh water pond.

The closed loop system components will be inspected daily by each tour and any needed 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.

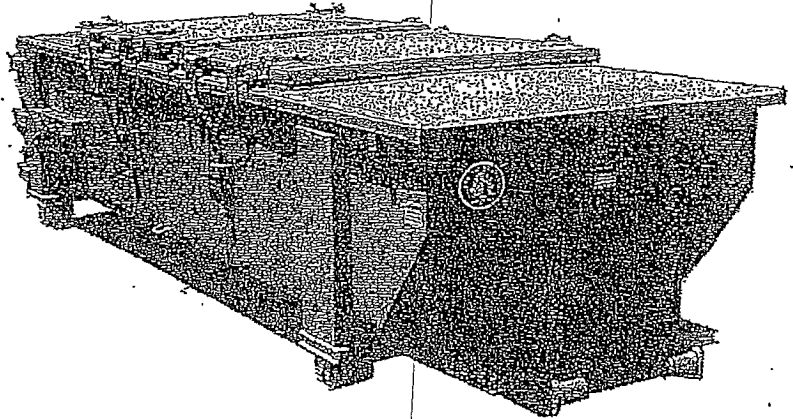
3. Mud will be transported by vacuum truck and disposed of at Controlled Recovery Inc at the facility described above.
4. Fresh Water and Brine will be hauled off by vacuum truck and disposed of at an authorized salt water disposal well. We propose the following for disposal of fresh water and brine 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, PO Box 1869 Eunice, NM 88231 Phone Number 575 394 2545, Facility located at Hwy 18, Mile Marker 19, Eunice, NM.

Luis Serrano Drilling Engineer
ConocoPhillips Company, 600 North Dairy Ashford, Room #2WL-13016, Houston, TX 77079-1175
Office: 832-486-2346

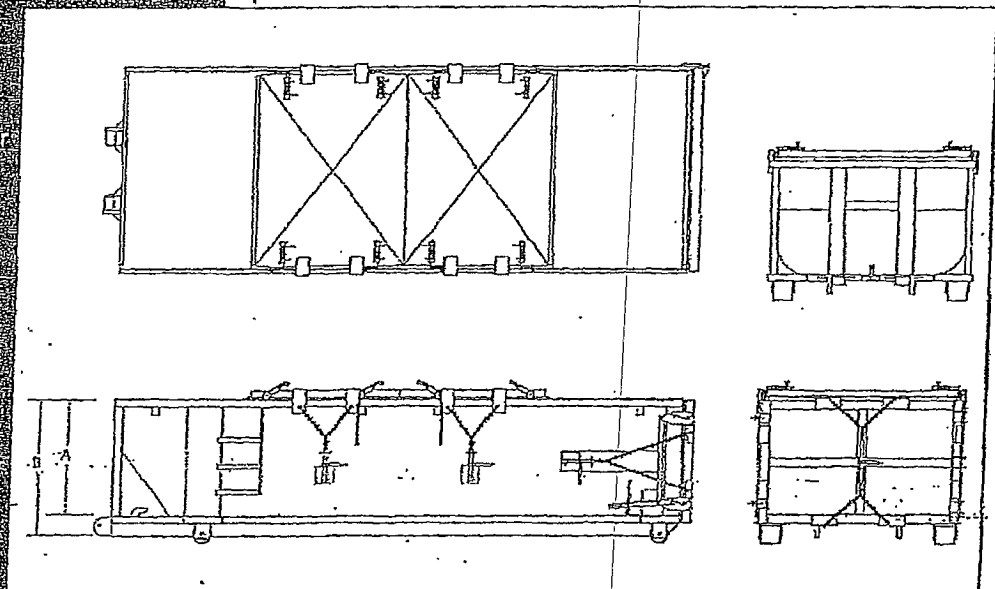
SPECIFICATIONS

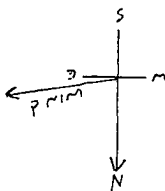
Heavy Duty Split Metal Rolling Lid

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, glusser 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, Hell 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



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





RIGHTED
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



NABORS

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

AP: 750-801

7	SHOWN TO YOUR COMPANY WITH THE UNDERSTANDING IT WAS FOR HARBORS INDUSTRIES.	ER DWG	DATE 09/20/2006
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THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN IS A CONFIDENTIAL DISCLOSURE. IT IS NOT TO BE REVEALED TO OTHERS OR USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF THE DISCLOSING AGENCY.

→ 054 →