



ConocoPhillips

Arapahoe County, Colorado

Arkansas 4-64 3-2 3BH

Design A

Casing Depths

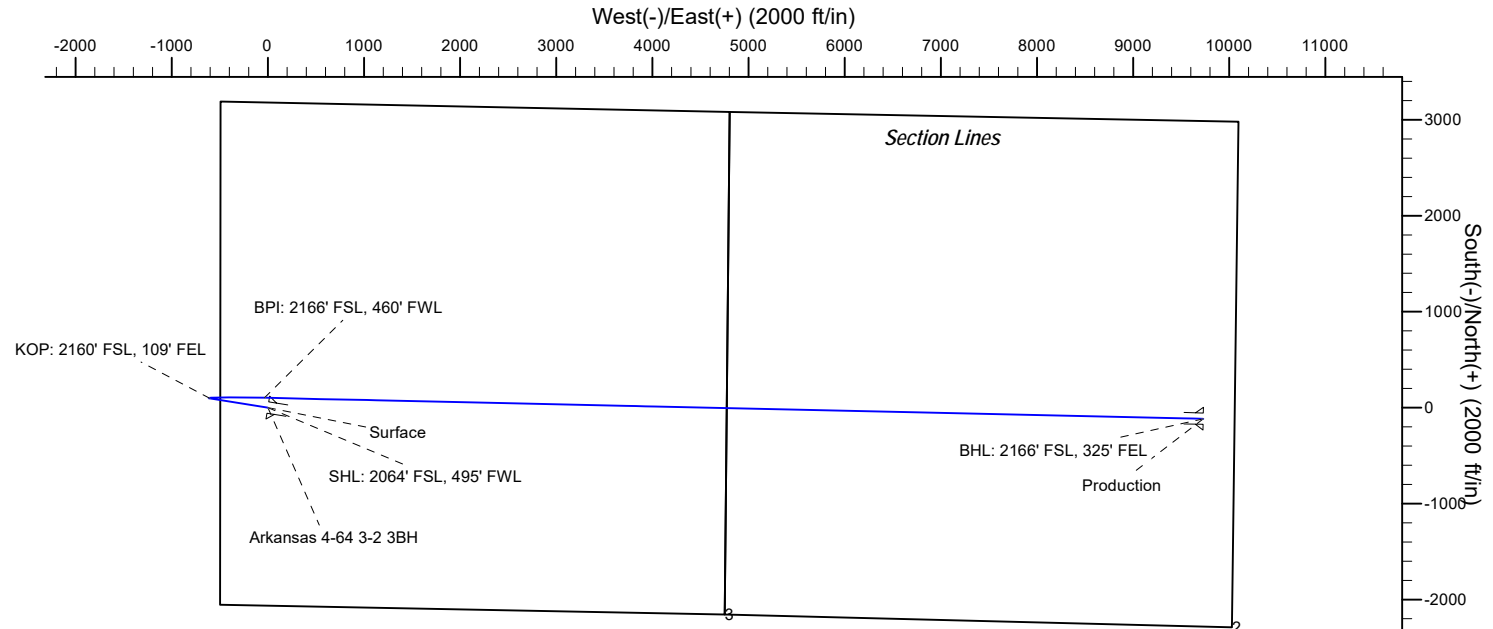
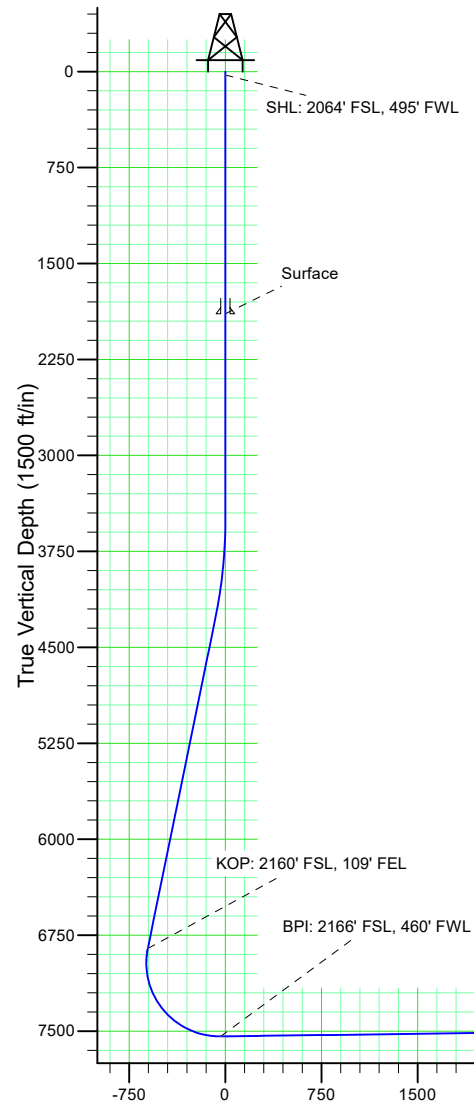
TVD	MD	Name	Size
1893.00	1893.00	Surface	9-5/8
7411.00	17705.95	Production	5-1/2

Ground Level: 5609.90
Surface Location Latitude: 39° 43' 48.334 N
Surface Location Longitude: 104° 32' 38.657 W
North Reference: True
27' RKB @ 5636.90ft (27' RKB)

North American Datum 1983
GRS 1980
US State Plane 1983
Colorado Central Zone

Well Profile Data

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3500.00	0.00	0.00	3500.00	0.00	0.00	0.00	0.00
4277.14	11.66	279.04	4271.79	12.38	-77.81	1.50	-77.95
6913.38	11.66	279.04	6853.66	96.11	-603.85	0.00	-604.95
7936.49	90.76	91.28	7541.00	102.77	-34.58	10.00	-35.80
17705.95	90.76	91.28	7411.00	-115.96	9731.56	0.00	9732.25



Wellbore Targets

Name	TVD	Latitude	Longitude
Arkansas 4-64 3-2 3BH BHL	7411.00	39° 43' 47.170 N	104° 30' 34.100 W
Arkansas 4-64 3-2 3BH BPI	7541.00	39° 43' 49.350 N	104° 32' 39.100 W

ConocoPhillips RBU Gold Data

Niobrara Central Zone

Arkansas

Arkansas 4-64 3-2 3BH

Arkansas 4-64 3-2 3BH

Plan: Design A

Standard Planning Report

13 December, 2017

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Arkansas 4-64 3-2 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	27' RKB @ 5636.90ft (27' RKB)
Project:	Niobrara Central Zone	MD Reference:	27' RKB @ 5636.90ft (27' RKB)
Site:	Arkansas	North Reference:	True
Well:	Arkansas 4-64 3-2 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3BH		
Design:	Design A		

Project	Niobrara Central Zone, Colorado Central Zone, FIPS Zone: 0502		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site	Arkansas				
Site Position:		Northing:	1,695,413.984 usft	Latitude:	39° 44' 19.849 N
From:	Lat/Long	Easting:	3,268,336.863 usft	Longitude:	104° 32' 44.941 W
Position Uncertainty:	2.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.60 °

Well	Arkansas 4-64 3-2 3BH					
Well Position	+N/-S	-3,188.86 ft	Northing:	1,692,230.470 usft	Latitude:	39° 43' 48.334 N
	+E/-W	490.94 ft	Easting:	3,268,861.270 usft	Longitude:	104° 32' 38.657 W
Position Uncertainty		2.00 ft	Wellhead Elevation:		Ground Level:	5,609.90 ft

Wellbore	Arkansas 4-64 3-2 3BH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	BGGM2017	10/3/2017	8.19	66.39	52,017.58091937	
	BGGM2017	1/1/2018	8.17	66.38	51,988.71650821	

Design	Design A				
Audit Notes:					
Version:	0	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	90.68	

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Planning Report

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Project:	Niobrara Central Zone	MD Reference:	27' RKB @ 5636.90ft (27' RKB)
Site:	Arkansas	North Reference:	True
Well:	Arkansas 4-64 3-2 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3BH		
Design:	Design A		

Plan Survey Tool Program		Date 12/12/2017			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,893.00	Design A (Arkansas 4-64 3-2 3BH)	Gyro-BM-MS	
				Gyro - bat/mem drop m/s	
2	1,893.00	3,500.00	Design A (Arkansas 4-64 3-2 3BH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
3	3,500.00	4,277.14	Design A (Arkansas 4-64 3-2 3BH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
4	4,277.14	6,913.38	Design A (Arkansas 4-64 3-2 3BH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
5	6,913.38	7,936.49	Design A (Arkansas 4-64 3-2 3BH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
6	7,936.49	17,705.95	Design A (Arkansas 4-64 3-2 3BH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,277.14	11.66	279.04	4,271.79	12.38	-77.81	1.50	1.50	0.00	279.04	
6,913.38	11.66	279.04	6,853.66	96.11	-603.85	0.00	0.00	0.00	0.00	
7,936.49	90.76	91.28	7,541.00	102.77	-34.58	10.00	7.73	16.83	172.06	Arkansas 4-64 3-2 ;
17,705.95	90.76	91.28	7,411.00	-115.96	9,731.56	0.00	0.00	0.00	0.00	Arkansas 4-64 3-2 ;

ConocoPhillips

Planning Report

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Company:	ConocoPhillips RBU Gold Data	TVD Reference:	27' RKB @ 5636.90ft (27' RKB)
Project:	Niobrara Central Zone	MD Reference:	27' RKB @ 5636.90ft (27' RKB)
Site:	Arkansas	North Reference:	True
Well:	Arkansas 4-64 3-2 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3BH		
Design:	Design A		

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27.00	0.00	0.00	27.00	0.00	0.00	0.00	0.00	0.00	0.00
SHL: 2064' FSL, 495' FWL									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,561.00	0.00	0.00	1,561.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Top									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,693.00	0.00	0.00	1,693.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills Base									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,893.00	0.00	0.00	1,893.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Casing - Surface									
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	1.50	279.04	3,599.99	0.21	-1.29	-1.30	1.50	1.50	0.00
3,700.00	3.00	279.04	3,699.91	0.82	-5.17	-5.18	1.50	1.50	0.00
3,800.00	4.50	279.04	3,799.69	1.85	-11.63	-11.65	1.50	1.50	0.00
3,900.00	6.00	279.04	3,899.27	3.29	-20.66	-20.70	1.50	1.50	0.00
4,000.00	7.50	279.04	3,998.57	5.14	-32.27	-32.33	1.50	1.50	0.00
4,100.00	9.00	279.04	4,097.54	7.39	-46.44	-46.53	1.50	1.50	0.00
4,200.00	10.50	279.04	4,196.09	10.05	-63.17	-63.28	1.50	1.50	0.00
4,277.14	11.66	279.04	4,271.79	12.38	-77.81	-77.95	1.50	1.50	0.00
4,300.00	11.66	279.04	4,294.18	13.11	-82.37	-82.52	0.00	0.00	0.00
4,400.00	11.66	279.04	4,392.12	16.29	-102.32	-102.51	0.00	0.00	0.00

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Planning Report

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Project:	Niobrara Central Zone	MD Reference:	27' RKB @ 5636.90ft (27' RKB)
Site:	Arkansas	North Reference:	True
Well:	Arkansas 4-64 3-2 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3BH		
Design:	Design A		

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)
4,500.00	11.66	279.04	4,490.05	19.46	-122.28	-122.50	0.00	0.00	0.00
4,600.00	11.66	279.04	4,587.99	22.64	-142.23	-142.49	0.00	0.00	0.00
4,700.00	11.66	279.04	4,685.93	25.81	-162.18	-162.48	0.00	0.00	0.00
4,800.00	11.66	279.04	4,783.87	28.99	-182.14	-182.47	0.00	0.00	0.00
4,900.00	11.66	279.04	4,881.80	32.16	-202.09	-202.46	0.00	0.00	0.00
5,000.00	11.66	279.04	4,979.74	35.34	-222.05	-222.45	0.00	0.00	0.00
5,100.00	11.66	279.04	5,077.68	38.52	-242.00	-242.44	0.00	0.00	0.00
5,200.00	11.66	279.04	5,175.61	41.69	-261.96	-262.43	0.00	0.00	0.00
5,300.00	11.66	279.04	5,273.55	44.87	-281.91	-282.42	0.00	0.00	0.00
5,400.00	11.66	279.04	5,371.49	48.04	-301.86	-302.42	0.00	0.00	0.00
5,500.00	11.66	279.04	5,469.43	51.22	-321.82	-322.41	0.00	0.00	0.00
5,600.00	11.66	279.04	5,567.36	54.40	-341.77	-342.40	0.00	0.00	0.00
5,700.00	11.66	279.04	5,665.30	57.57	-361.73	-362.39	0.00	0.00	0.00
5,800.00	11.66	279.04	5,763.24	60.75	-381.68	-382.38	0.00	0.00	0.00
5,900.00	11.66	279.04	5,861.18	63.92	-401.64	-402.37	0.00	0.00	0.00
6,000.00	11.66	279.04	5,959.11	67.10	-421.59	-422.36	0.00	0.00	0.00
6,100.00	11.66	279.04	6,057.05	70.28	-441.54	-442.35	0.00	0.00	0.00
6,200.00	11.66	279.04	6,154.99	73.45	-461.50	-462.34	0.00	0.00	0.00
6,300.00	11.66	279.04	6,252.93	76.63	-481.45	-482.33	0.00	0.00	0.00
6,400.00	11.66	279.04	6,350.86	79.80	-501.41	-502.32	0.00	0.00	0.00
6,500.00	11.66	279.04	6,448.80	82.98	-521.36	-522.31	0.00	0.00	0.00
6,600.00	11.66	279.04	6,546.74	86.16	-541.32	-542.30	0.00	0.00	0.00
6,700.00	11.66	279.04	6,644.68	89.33	-561.27	-562.29	0.00	0.00	0.00
6,800.00	11.66	279.04	6,742.61	92.51	-581.22	-582.29	0.00	0.00	0.00
6,900.00	11.66	279.04	6,840.55	95.68	-601.18	-602.28	0.00	0.00	0.00
6,913.38	11.66	279.04	6,853.66	96.11	-603.85	-604.95	0.00	0.00	0.00
KOP: 2160' FSL, 109' FEL									
6,950.00	8.05	282.66	6,889.73	97.25	-610.01	-611.12	10.00	-9.86	9.87
7,000.00	3.30	300.24	6,939.47	98.74	-614.67	-615.80	10.00	-9.49	35.16
7,050.00	2.65	54.15	6,989.44	100.15	-614.97	-616.12	10.00	-1.30	227.83
7,100.00	7.29	78.65	7,039.24	101.45	-610.92	-612.09	10.00	9.28	49.00
7,150.00	12.22	83.85	7,088.50	102.64	-602.55	-603.73	10.00	9.85	10.40
7,200.00	17.19	86.08	7,136.85	103.71	-589.91	-591.10	10.00	9.94	4.46
7,250.00	22.17	87.33	7,183.92	104.66	-573.11	-574.31	10.00	9.97	2.50
7,300.00	27.16	88.14	7,229.34	105.47	-552.27	-553.48	10.00	9.98	1.62
7,350.00	32.15	88.71	7,272.78	106.14	-527.55	-528.77	10.00	9.98	1.15
7,400.00	37.14	89.15	7,313.90	106.66	-499.13	-500.37	10.00	9.99	0.87
7,421.77	39.32	89.31	7,331.00	106.84	-485.67	-486.90	10.00	9.99	0.73
Niobrara Top									
7,450.00	42.14	89.49	7,352.39	107.03	-467.25	-468.49	10.00	9.99	0.66
7,500.00	47.13	89.78	7,387.96	107.25	-432.13	-433.38	10.00	9.99	0.57
7,550.00	52.13	90.02	7,420.33	107.32	-394.05	-395.30	10.00	9.99	0.48
7,600.00	57.13	90.23	7,449.27	107.23	-353.29	-354.54	10.00	9.99	0.42
7,650.00	62.13	90.42	7,474.54	106.98	-310.17	-311.42	10.00	9.99	0.38
7,700.00	67.12	90.59	7,495.96	106.59	-265.01	-266.26	10.00	10.00	0.34
7,750.00	72.12	90.75	7,513.37	106.04	-218.15	-219.40	10.00	10.00	0.32
7,800.00	77.12	90.90	7,526.63	105.35	-169.96	-171.21	10.00	10.00	0.30
7,821.37	79.25	90.96	7,531.00	105.01	-149.05	-150.29	10.00	10.00	0.29
D Chalk Top									
7,850.00	82.12	91.04	7,535.63	104.52	-120.81	-122.04	10.00	10.00	0.29
7,900.00	87.11	91.18	7,540.32	103.55	-71.05	-72.28	10.00	10.00	0.28
7,936.49	90.76	91.28	7,541.00	102.77	-34.58	-35.80	10.00	10.00	0.28
BPI: 2166' FSL, 460' FWL - Arkansas 4-64 3-2 3BH BPI									

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Arkansas 4-64 3-2 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	27' RKB @ 5636.90ft (27' RKB)
Project:	Niobrara Central Zone	MD Reference:	27' RKB @ 5636.90ft (27' RKB)
Site:	Arkansas	North Reference:	True
Well:	Arkansas 4-64 3-2 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3BH		
Design:	Design A		

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)
8,000.00	90.76	91.28	7,540.16	101.35	28.91	27.70	0.00	0.00	0.00
8,100.00	90.76	91.28	7,538.82	99.11	128.87	127.68	0.00	0.00	0.00
8,200.00	90.76	91.28	7,537.49	96.87	228.84	227.67	0.00	0.00	0.00
8,300.00	90.76	91.28	7,536.16	94.63	328.80	327.65	0.00	0.00	0.00
8,400.00	90.76	91.28	7,534.83	92.39	428.77	427.64	0.00	0.00	0.00
8,500.00	90.76	91.28	7,533.50	90.15	528.74	527.62	0.00	0.00	0.00
8,600.00	90.76	91.28	7,532.17	87.91	628.70	627.61	0.00	0.00	0.00
8,700.00	90.76	91.28	7,530.84	85.67	728.67	727.60	0.00	0.00	0.00
8,800.00	90.76	91.28	7,529.51	83.43	828.63	827.58	0.00	0.00	0.00
8,900.00	90.76	91.28	7,528.18	81.19	928.60	927.57	0.00	0.00	0.00
9,000.00	90.76	91.28	7,526.85	78.95	1,028.57	1,027.55	0.00	0.00	0.00
9,100.00	90.76	91.28	7,525.52	76.71	1,128.53	1,127.54	0.00	0.00	0.00
9,200.00	90.76	91.28	7,524.19	74.47	1,228.50	1,227.52	0.00	0.00	0.00
9,300.00	90.76	91.28	7,522.86	72.23	1,328.46	1,327.51	0.00	0.00	0.00
9,400.00	90.76	91.28	7,521.53	69.99	1,428.43	1,427.50	0.00	0.00	0.00
9,500.00	90.76	91.28	7,520.19	67.75	1,528.40	1,527.48	0.00	0.00	0.00
9,600.00	90.76	91.28	7,518.86	65.51	1,628.36	1,627.47	0.00	0.00	0.00
9,700.00	90.76	91.28	7,517.53	63.27	1,728.33	1,727.45	0.00	0.00	0.00
9,800.00	90.76	91.28	7,516.20	61.03	1,828.30	1,827.44	0.00	0.00	0.00
9,900.00	90.76	91.28	7,514.87	58.79	1,928.26	1,927.42	0.00	0.00	0.00
10,000.00	90.76	91.28	7,513.54	56.55	2,028.23	2,027.41	0.00	0.00	0.00
10,100.00	90.76	91.28	7,512.21	54.32	2,128.19	2,127.39	0.00	0.00	0.00
10,200.00	90.76	91.28	7,510.88	52.08	2,228.16	2,227.38	0.00	0.00	0.00
10,300.00	90.76	91.28	7,509.55	49.84	2,328.13	2,327.37	0.00	0.00	0.00
10,400.00	90.76	91.28	7,508.22	47.60	2,428.09	2,427.35	0.00	0.00	0.00
10,500.00	90.76	91.28	7,506.89	45.36	2,528.06	2,527.34	0.00	0.00	0.00
10,600.00	90.76	91.28	7,505.56	43.12	2,628.02	2,627.32	0.00	0.00	0.00
10,700.00	90.76	91.28	7,504.23	40.88	2,727.99	2,727.31	0.00	0.00	0.00
10,800.00	90.76	91.28	7,502.90	38.64	2,827.96	2,827.29	0.00	0.00	0.00
10,900.00	90.76	91.28	7,501.57	36.40	2,927.92	2,927.28	0.00	0.00	0.00
11,000.00	90.76	91.28	7,500.23	34.16	3,027.89	3,027.27	0.00	0.00	0.00
11,100.00	90.76	91.28	7,498.90	31.92	3,127.85	3,127.25	0.00	0.00	0.00
11,200.00	90.76	91.28	7,497.57	29.68	3,227.82	3,227.24	0.00	0.00	0.00
11,300.00	90.76	91.28	7,496.24	27.44	3,327.79	3,327.22	0.00	0.00	0.00
11,400.00	90.76	91.28	7,494.91	25.20	3,427.75	3,427.21	0.00	0.00	0.00
11,500.00	90.76	91.28	7,493.58	22.96	3,527.72	3,527.19	0.00	0.00	0.00
11,600.00	90.76	91.28	7,492.25	20.72	3,627.68	3,627.18	0.00	0.00	0.00
11,700.00	90.76	91.28	7,490.92	18.48	3,727.65	3,727.17	0.00	0.00	0.00
11,800.00	90.76	91.28	7,489.59	16.24	3,827.62	3,827.15	0.00	0.00	0.00
11,900.00	90.76	91.28	7,488.26	14.00	3,927.58	3,927.14	0.00	0.00	0.00
12,000.00	90.76	91.28	7,486.93	11.76	4,027.55	4,027.12	0.00	0.00	0.00
12,100.00	90.76	91.28	7,485.60	9.52	4,127.51	4,127.11	0.00	0.00	0.00
12,200.00	90.76	91.28	7,484.27	7.28	4,227.48	4,227.09	0.00	0.00	0.00
12,300.00	90.76	91.28	7,482.94	5.04	4,327.45	4,327.08	0.00	0.00	0.00
12,400.00	90.76	91.28	7,481.61	2.80	4,427.41	4,427.06	0.00	0.00	0.00
12,500.00	90.76	91.28	7,480.27	0.56	4,527.38	4,527.05	0.00	0.00	0.00
12,600.00	90.76	91.28	7,478.94	-1.68	4,627.34	4,627.04	0.00	0.00	0.00
12,700.00	90.76	91.28	7,477.61	-3.92	4,727.31	4,727.02	0.00	0.00	0.00
12,800.00	90.76	91.28	7,476.28	-6.15	4,827.28	4,827.01	0.00	0.00	0.00
12,900.00	90.76	91.28	7,474.95	-8.39	4,927.24	4,926.99	0.00	0.00	0.00
13,000.00	90.76	91.28	7,473.62	-10.63	5,027.21	5,026.98	0.00	0.00	0.00
13,100.00	90.76	91.28	7,472.29	-12.87	5,127.18	5,126.96	0.00	0.00	0.00
13,200.00	90.76	91.28	7,470.96	-15.11	5,227.14	5,226.95	0.00	0.00	0.00
13,300.00	90.76	91.28	7,469.63	-17.35	5,327.11	5,326.94	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Arkansas 4-64 3-2 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	27' RKB @ 5636.90ft (27' RKB)
Project:	Niobrara Central Zone	MD Reference:	27' RKB @ 5636.90ft (27' RKB)
Site:	Arkansas	North Reference:	True
Well:	Arkansas 4-64 3-2 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3BH		
Design:	Design A		

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)
13,400.00	90.76	91.28	7,468.30	-19.59	5,427.07	5,426.92	0.00	0.00	0.00
13,500.00	90.76	91.28	7,466.97	-21.83	5,527.04	5,526.91	0.00	0.00	0.00
13,600.00	90.76	91.28	7,465.64	-24.07	5,627.01	5,626.89	0.00	0.00	0.00
13,700.00	90.76	91.28	7,464.31	-26.31	5,726.97	5,726.88	0.00	0.00	0.00
13,800.00	90.76	91.28	7,462.98	-28.55	5,826.94	5,826.86	0.00	0.00	0.00
13,900.00	90.76	91.28	7,461.65	-30.79	5,926.90	5,926.85	0.00	0.00	0.00
14,000.00	90.76	91.28	7,460.31	-33.03	6,026.87	6,026.84	0.00	0.00	0.00
14,100.00	90.76	91.28	7,458.98	-35.27	6,126.84	6,126.82	0.00	0.00	0.00
14,200.00	90.76	91.28	7,457.65	-37.51	6,226.80	6,226.81	0.00	0.00	0.00
14,300.00	90.76	91.28	7,456.32	-39.75	6,326.77	6,326.79	0.00	0.00	0.00
14,400.00	90.76	91.28	7,454.99	-41.99	6,426.73	6,426.78	0.00	0.00	0.00
14,500.00	90.76	91.28	7,453.66	-44.23	6,526.70	6,526.76	0.00	0.00	0.00
14,600.00	90.76	91.28	7,452.33	-46.47	6,626.67	6,626.75	0.00	0.00	0.00
14,700.00	90.76	91.28	7,451.00	-48.71	6,726.63	6,726.74	0.00	0.00	0.00
14,800.00	90.76	91.28	7,449.67	-50.95	6,826.60	6,826.72	0.00	0.00	0.00
14,900.00	90.76	91.28	7,448.34	-53.19	6,926.56	6,926.71	0.00	0.00	0.00
15,000.00	90.76	91.28	7,447.01	-55.43	7,026.53	7,026.69	0.00	0.00	0.00
15,100.00	90.76	91.28	7,445.68	-57.67	7,126.50	7,126.68	0.00	0.00	0.00
15,200.00	90.76	91.28	7,444.35	-59.91	7,226.46	7,226.66	0.00	0.00	0.00
15,300.00	90.76	91.28	7,443.02	-62.15	7,326.43	7,326.65	0.00	0.00	0.00
15,400.00	90.76	91.28	7,441.68	-64.39	7,426.39	7,426.63	0.00	0.00	0.00
15,500.00	90.76	91.28	7,440.35	-66.63	7,526.36	7,526.62	0.00	0.00	0.00
15,600.00	90.76	91.28	7,439.02	-68.86	7,626.33	7,626.61	0.00	0.00	0.00
15,700.00	90.76	91.28	7,437.69	-71.10	7,726.29	7,726.59	0.00	0.00	0.00
15,800.00	90.76	91.28	7,436.36	-73.34	7,826.26	7,826.58	0.00	0.00	0.00
15,900.00	90.76	91.28	7,435.03	-75.58	7,926.22	7,926.56	0.00	0.00	0.00
16,000.00	90.76	91.28	7,433.70	-77.82	8,026.19	8,026.55	0.00	0.00	0.00
16,100.00	90.76	91.28	7,432.37	-80.06	8,126.16	8,126.53	0.00	0.00	0.00
16,200.00	90.76	91.28	7,431.04	-82.30	8,226.12	8,226.52	0.00	0.00	0.00
16,300.00	90.76	91.28	7,429.71	-84.54	8,326.09	8,326.51	0.00	0.00	0.00
16,400.00	90.76	91.28	7,428.38	-86.78	8,426.06	8,426.49	0.00	0.00	0.00
16,500.00	90.76	91.28	7,427.05	-89.02	8,526.02	8,526.48	0.00	0.00	0.00
16,600.00	90.76	91.28	7,425.72	-91.26	8,625.99	8,626.46	0.00	0.00	0.00
16,700.00	90.76	91.28	7,424.39	-93.50	8,725.95	8,726.45	0.00	0.00	0.00
16,800.00	90.76	91.28	7,423.06	-95.74	8,825.92	8,826.43	0.00	0.00	0.00
16,900.00	90.76	91.28	7,421.72	-97.98	8,925.89	8,926.42	0.00	0.00	0.00
17,000.00	90.76	91.28	7,420.39	-100.22	9,025.85	9,026.41	0.00	0.00	0.00
17,100.00	90.76	91.28	7,419.06	-102.46	9,125.82	9,126.39	0.00	0.00	0.00
17,200.00	90.76	91.28	7,417.73	-104.70	9,225.78	9,226.38	0.00	0.00	0.00
17,300.00	90.76	91.28	7,416.40	-106.94	9,325.75	9,326.36	0.00	0.00	0.00
17,400.00	90.76	91.28	7,415.07	-109.18	9,425.72	9,426.35	0.00	0.00	0.00
17,500.00	90.76	91.28	7,413.74	-111.42	9,525.68	9,526.33	0.00	0.00	0.00
17,600.00	90.76	91.28	7,412.41	-113.66	9,625.65	9,626.32	0.00	0.00	0.00
17,705.95	90.76	91.28	7,411.00	-115.96	9,731.56	9,732.25	0.00	0.00	0.00
BHL: 2166' FSL, 325' FEL - Arkansas 4-64 3-2 3BH BHL									

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Arkansas 4-64 3-2 3BH
Company:	ConocoPhillips RBU Gold Data	TVD Reference:	27' RKB @ 5636.90ft (27' RKB)
Project:	Niobrara Central Zone	MD Reference:	27' RKB @ 5636.90ft (27' RKB)
Site:	Arkansas	North Reference:	True
Well:	Arkansas 4-64 3-2 3BH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3BH		
Design:	Design A		

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Arkansas 4-64 3-2 3B - plan hits target center - Point	0.00	0.00	7,411.00	-115.96	9,731.56	1,692,216.912	3,278,593.455	39° 43' 47.170 N	104° 30' 34.100 W
Arkansas 4-64 3-2 3B - plan hits target center - Point	0.00	0.00	7,541.00	102.77	-34.58	1,692,332.869	3,268,825.612	39° 43' 49.350 N	104° 32' 39.100 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,893.00	1,893.00	Surface	9-5/8	12-1/4
17,705.95	7,411.00	Production	5-1/2	8-1/2

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,561.00	1,561.00	Fox Hills Top		0.00	
1,693.00	1,693.00	Fox Hills Base		0.00	
1,893.00	1,893.00	Surface Casing		0.00	
7,421.77	7,331.00	Niobrara Top		0.00	
7,821.37	7,531.00	D Chalk Top		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
27.00	27.00	0.00	0.00	SHL: 2064' FSL, 495' FWL
6,913.38	6,853.66	96.11	-603.85	KOP: 2160' FSL, 109' FEL
7,936.49	7,541.00	102.77	-34.58	BPI: 2166' FSL, 460' FWL
17,705.95	7,411.00	-115.96	9,731.56	BHL: 2166' FSL, 325' FEL