



ConocoPhillips

Arapahoe County, Colorado

Arkansas 4-64 3-2 3AH

Design A

Casing Depths

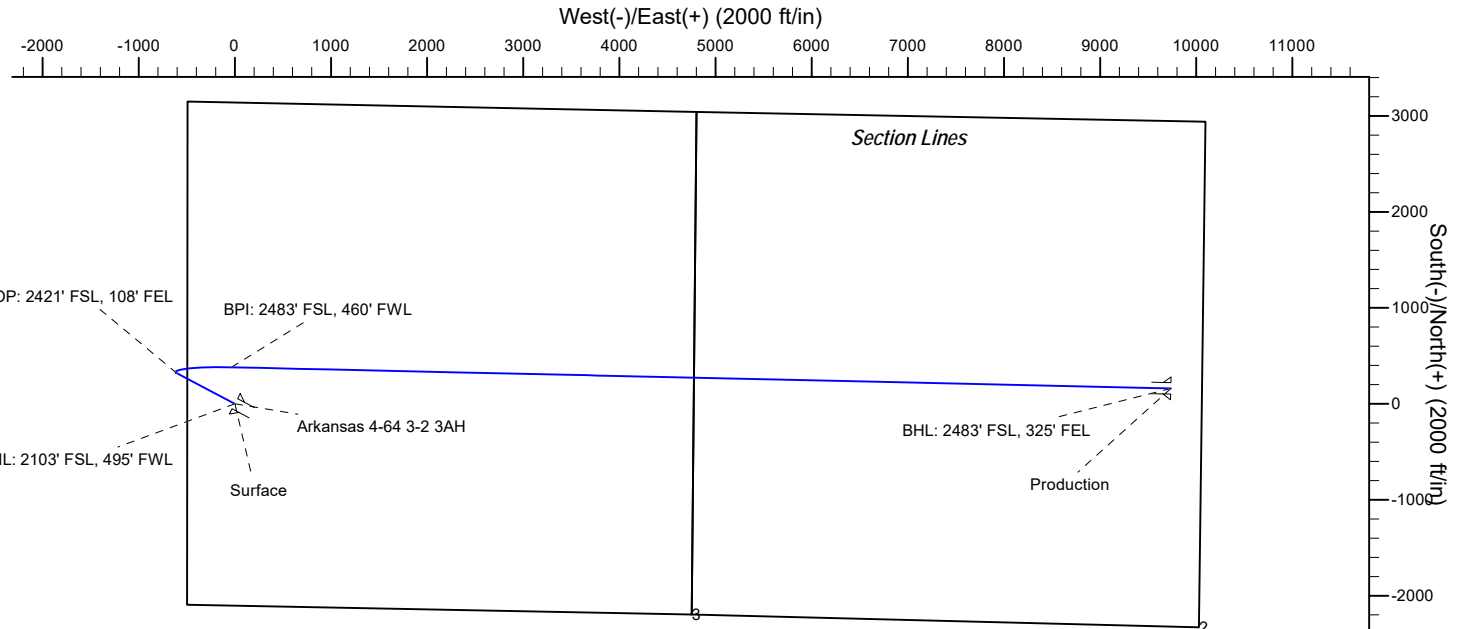
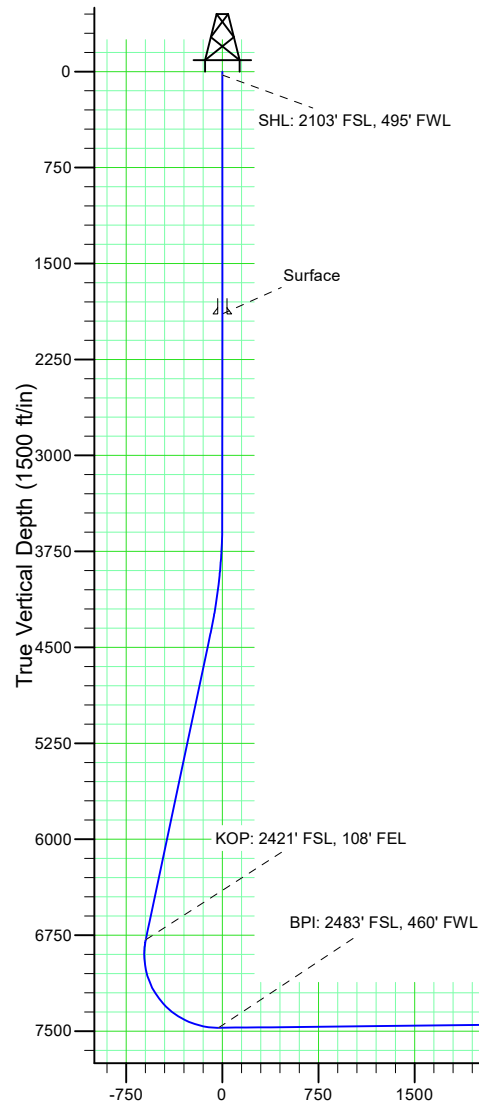
TVD	MD	Name	Size
1895.00	1895.00	Surface	9-5/8
7368.00	17662.63	Production	5-1/2

Ground Level: 5609.90
Surface Location Latitude: 39° 43' 48.728 N
Surface Location Longitude: 104° 32' 38.655 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
4402.23	13.53	297.85	4393.87	49.54	-93.78	1.50	-92.95
6861.87	13.53	297.85	6785.21	318.41	-602.71	0.00	-597.37
7888.88	90.62	91.29	7474.00	380.61	-34.73	10.00	-28.43
17662.63	90.62	91.29	7368.00	160.87	9735.98	0.00	9737.31



Wellbore Targets

Name	TVD	Latitude	Longitude
Arkansas 4-64 3-2 3AH BHL	7368.00	39° 43' 50.300 N	104° 30' 34.040 W
Arkansas 4-64 3-2 3AH BPI	7474.00	39° 43' 52.490 N	104° 32' 39.100 W

ConocoPhillips RBU Gold Data

Niobrara Central Zone

Arkansas

Arkansas 4-64 3-2 3AH

Arkansas 4-64 3-2 3AH

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 3AH
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 3AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3AH		
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 3AH					
Well Position	+N/-S	-3,148.98 ft	Northing:	1,692,270.350 usft	Latitude:	39° 43' 48.728 N
	+E/-W	491.09 ft	Easting:	3,268,861.000 usft	Longitude:	104° 32' 38.655 W
Position Uncertainty		2.00 ft	Wellhead Elevation:		Ground Level:	5,609.90 ft

Wellbore	Arkansas 4-64 3-2 3AH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)	
	BGGM2017	10/2/2017	8.19	66.39	52,017.95505395	
	BGGM2017	1/1/2018	8.17	66.38	51,988.76989715	

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	89.05	

ConocoPhillips

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 3AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3AH		
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	1,895.00	Design A (Arkansas 4-64 3-2 3AH)	Gyro-BM-MS	
				Gyro - bat/mem drop m/s	
2	1,895.00	3,500.00	Design A (Arkansas 4-64 3-2 3AH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
3	3,500.00	4,402.23	Design A (Arkansas 4-64 3-2 3AH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
4	4,402.23	6,861.87	Design A (Arkansas 4-64 3-2 3AH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
5	6,861.87	7,888.88	Design A (Arkansas 4-64 3-2 3AH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
6	7,888.88	17,662.63	Design A (Arkansas 4-64 3-2 3AH)	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	
4,402.23	13.53	297.85	4,393.87	49.54	-93.78	1.50	1.50	0.00	297.85	
6,861.87	13.53	297.85	6,785.21	318.41	-602.71	0.00	0.00	0.00	0.00	
7,888.88	90.62	91.29	7,474.00	380.61	-34.73	10.00	7.51	14.94	152.72	Arkansas 4-64 3-2 ;
17,662.63	90.62	91.29	7,368.00	160.87	9,735.98	0.00	0.00	0.00	0.00	Arkansas 4-64 3-2 ;

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Arkansas 4-64 3-2 3AH
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 3AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3AH		
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: 2103' 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
1,695.00	0.00	0.00	1,695.00	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
1,895.00	0.00	0.00	1,895.00	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	297.85	3,599.99	0.61	-1.16	-1.15	1.50	1.50	0.00
3,700.00	3.00	297.85	3,699.91	2.45	-4.63	-4.59	1.50	1.50	0.00
3,800.00	4.50	297.85	3,799.69	5.50	-10.41	-10.32	1.50	1.50	0.00
3,900.00	6.00	297.85	3,899.27	9.77	-18.50	-18.34	1.50	1.50	0.00
4,000.00	7.50	297.85	3,998.57	15.26	-28.89	-28.64	1.50	1.50	0.00
4,100.00	9.00	297.85	4,097.54	21.97	-41.58	-41.21	1.50	1.50	0.00
4,200.00	10.50	297.85	4,196.09	29.88	-56.55	-56.05	1.50	1.50	0.00
4,300.00	12.00	297.85	4,294.16	38.99	-73.80	-73.15	1.50	1.50	0.00
4,402.23	13.53	297.85	4,393.87	49.54	-93.78	-92.95	1.50	1.50	0.00
4,500.00	13.53	297.85	4,488.92	60.23	-114.01	-113.00	0.00	0.00	0.00

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Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Arkansas 4-64 3-2 3AH
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 3AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3AH		
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)
4,600.00	13.53	297.85	4,586.14	71.16	-134.70	-133.51	0.00	0.00	0.00
4,700.00	13.53	297.85	4,683.37	82.09	-155.39	-154.01	0.00	0.00	0.00
4,800.00	13.53	297.85	4,780.59	93.02	-176.08	-174.52	0.00	0.00	0.00
4,900.00	13.53	297.85	4,877.81	103.95	-196.77	-195.03	0.00	0.00	0.00
5,000.00	13.53	297.85	4,975.04	114.89	-217.47	-215.54	0.00	0.00	0.00
5,100.00	13.53	297.85	5,072.26	125.82	-238.16	-236.05	0.00	0.00	0.00
5,200.00	13.53	297.85	5,169.48	136.75	-258.85	-256.55	0.00	0.00	0.00
5,300.00	13.53	297.85	5,266.71	147.68	-279.54	-277.06	0.00	0.00	0.00
5,400.00	13.53	297.85	5,363.93	158.61	-300.23	-297.57	0.00	0.00	0.00
5,500.00	13.53	297.85	5,461.15	169.54	-320.92	-318.08	0.00	0.00	0.00
5,600.00	13.53	297.85	5,558.38	180.47	-341.61	-338.59	0.00	0.00	0.00
5,700.00	13.53	297.85	5,655.60	191.40	-362.31	-359.09	0.00	0.00	0.00
5,800.00	13.53	297.85	5,752.82	202.33	-383.00	-379.60	0.00	0.00	0.00
5,900.00	13.53	297.85	5,850.05	213.27	-403.69	-400.11	0.00	0.00	0.00
6,000.00	13.53	297.85	5,947.27	224.20	-424.38	-420.62	0.00	0.00	0.00
6,100.00	13.53	297.85	6,044.49	235.13	-445.07	-441.13	0.00	0.00	0.00
6,200.00	13.53	297.85	6,141.72	246.06	-465.76	-461.63	0.00	0.00	0.00
6,300.00	13.53	297.85	6,238.94	256.99	-486.45	-482.14	0.00	0.00	0.00
6,400.00	13.53	297.85	6,336.16	267.92	-507.15	-502.65	0.00	0.00	0.00
6,500.00	13.53	297.85	6,433.39	278.85	-527.84	-523.16	0.00	0.00	0.00
6,600.00	13.53	297.85	6,530.61	289.78	-548.53	-543.67	0.00	0.00	0.00
6,700.00	13.53	297.85	6,627.83	300.72	-569.22	-564.17	0.00	0.00	0.00
6,800.00	13.53	297.85	6,725.06	311.65	-589.91	-584.68	0.00	0.00	0.00
6,861.87	13.53	297.85	6,785.21	318.41	-602.71	-597.37	0.00	0.00	0.00
KOP: 2421' FSL, 108' FEL									
6,900.00	10.29	307.67	6,822.52	322.58	-609.36	-603.94	10.00	-8.50	25.76
6,950.00	6.96	333.23	6,871.96	328.02	-614.26	-608.76	10.00	-6.65	51.12
7,000.00	6.40	17.01	6,921.65	333.39	-614.81	-609.22	10.00	-1.14	87.57
7,050.00	9.12	48.99	6,971.21	338.66	-611.00	-605.33	10.00	5.44	63.95
7,100.00	13.23	63.92	7,020.26	343.77	-602.87	-597.11	10.00	8.23	29.87
7,150.00	17.80	71.59	7,068.43	348.71	-590.47	-584.63	10.00	9.14	15.35
7,200.00	22.55	76.17	7,115.35	353.42	-573.90	-567.98	10.00	9.50	9.14
7,250.00	27.39	79.20	7,160.67	357.87	-553.28	-547.29	10.00	9.67	6.07
7,300.00	32.27	81.38	7,204.03	362.02	-528.77	-522.72	10.00	9.76	4.36
7,350.00	37.18	83.04	7,245.12	365.85	-500.56	-494.45	10.00	9.82	3.32
7,400.00	42.11	84.37	7,283.61	369.33	-468.86	-462.69	10.00	9.86	2.64
7,450.00	47.05	85.46	7,319.21	372.43	-433.92	-427.70	10.00	9.88	2.18
7,466.07	48.64	85.77	7,330.00	373.34	-422.04	-415.81	10.00	9.89	1.95
Niobrara Top									
7,500.00	52.00	86.39	7,351.66	375.12	-395.99	-389.74	10.00	9.90	1.81
7,550.00	56.95	87.20	7,380.70	377.39	-355.37	-349.09	10.00	9.91	1.62
7,600.00	61.91	87.92	7,406.12	379.21	-312.37	-306.07	10.00	9.92	1.45
7,650.00	66.88	88.58	7,427.72	380.58	-267.32	-261.00	10.00	9.93	1.32
7,700.00	71.85	89.19	7,445.34	381.48	-220.55	-214.22	10.00	9.93	1.23
7,750.00	76.82	89.77	7,458.84	381.91	-172.43	-166.09	10.00	9.94	1.16
7,774.93	79.29	90.05	7,464.00	381.95	-148.04	-141.71	10.00	9.94	1.12
C Chalk Top									
7,800.00	81.79	90.33	7,468.12	381.87	-123.31	-116.99	10.00	9.94	1.10
7,850.00	86.76	90.87	7,473.11	381.35	-73.58	-67.27	10.00	9.94	1.08
7,888.88	90.62	91.29	7,474.00	380.61	-34.73	-28.43	10.00	9.94	1.07
BPI: 2483' FSL, 460' FWL - Arkansas 4-64 3-2 3AH BPI									
7,900.00	90.62	91.29	7,473.88	380.36	-23.61	-17.32	0.00	0.00	0.00
8,000.00	90.62	91.29	7,472.79	378.11	76.36	82.60	0.00	0.00	0.00

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Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Arkansas 4-64 3-2 3AH
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 3AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3AH		
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)
8,100.00	90.62	91.29	7,471.71	375.87	176.33	182.52	0.00	0.00	0.00
8,200.00	90.62	91.29	7,470.63	373.62	276.30	282.43	0.00	0.00	0.00
8,300.00	90.62	91.29	7,469.54	371.37	376.27	382.35	0.00	0.00	0.00
8,400.00	90.62	91.29	7,468.46	369.12	476.24	482.27	0.00	0.00	0.00
8,500.00	90.62	91.29	7,467.37	366.87	576.21	582.19	0.00	0.00	0.00
8,600.00	90.62	91.29	7,466.29	364.62	676.17	682.11	0.00	0.00	0.00
8,700.00	90.62	91.29	7,465.20	362.37	776.14	782.02	0.00	0.00	0.00
8,800.00	90.62	91.29	7,464.12	360.12	876.11	881.94	0.00	0.00	0.00
8,900.00	90.62	91.29	7,463.03	357.87	976.08	981.86	0.00	0.00	0.00
9,000.00	90.62	91.29	7,461.95	355.62	1,076.05	1,081.78	0.00	0.00	0.00
9,100.00	90.62	91.29	7,460.87	353.38	1,176.02	1,181.70	0.00	0.00	0.00
9,200.00	90.62	91.29	7,459.78	351.13	1,275.99	1,281.61	0.00	0.00	0.00
9,300.00	90.62	91.29	7,458.70	348.88	1,375.96	1,381.53	0.00	0.00	0.00
9,400.00	90.62	91.29	7,457.61	346.63	1,475.92	1,481.45	0.00	0.00	0.00
9,500.00	90.62	91.29	7,456.53	344.38	1,575.89	1,581.37	0.00	0.00	0.00
9,600.00	90.62	91.29	7,455.44	342.13	1,675.86	1,681.29	0.00	0.00	0.00
9,700.00	90.62	91.29	7,454.36	339.88	1,775.83	1,781.20	0.00	0.00	0.00
9,800.00	90.62	91.29	7,453.27	337.63	1,875.80	1,881.12	0.00	0.00	0.00
9,900.00	90.62	91.29	7,452.19	335.38	1,975.77	1,981.04	0.00	0.00	0.00
10,000.00	90.62	91.29	7,451.10	333.13	2,075.74	2,080.96	0.00	0.00	0.00
10,100.00	90.62	91.29	7,450.02	330.89	2,175.71	2,180.88	0.00	0.00	0.00
10,200.00	90.62	91.29	7,448.94	328.64	2,275.68	2,280.79	0.00	0.00	0.00
10,300.00	90.62	91.29	7,447.85	326.39	2,375.64	2,380.71	0.00	0.00	0.00
10,400.00	90.62	91.29	7,446.77	324.14	2,475.61	2,480.63	0.00	0.00	0.00
10,500.00	90.62	91.29	7,445.68	321.89	2,575.58	2,580.55	0.00	0.00	0.00
10,600.00	90.62	91.29	7,444.60	319.64	2,675.55	2,680.47	0.00	0.00	0.00
10,700.00	90.62	91.29	7,443.51	317.39	2,775.52	2,780.38	0.00	0.00	0.00
10,800.00	90.62	91.29	7,442.43	315.14	2,875.49	2,880.30	0.00	0.00	0.00
10,900.00	90.62	91.29	7,441.34	312.89	2,975.46	2,980.22	0.00	0.00	0.00
11,000.00	90.62	91.29	7,440.26	310.64	3,075.43	3,080.14	0.00	0.00	0.00
11,100.00	90.62	91.29	7,439.17	308.40	3,175.39	3,180.06	0.00	0.00	0.00
11,200.00	90.62	91.29	7,438.09	306.15	3,275.36	3,279.97	0.00	0.00	0.00
11,300.00	90.62	91.29	7,437.01	303.90	3,375.33	3,379.89	0.00	0.00	0.00
11,400.00	90.62	91.29	7,435.92	301.65	3,475.30	3,479.81	0.00	0.00	0.00
11,500.00	90.62	91.29	7,434.84	299.40	3,575.27	3,579.73	0.00	0.00	0.00
11,600.00	90.62	91.29	7,433.75	297.15	3,675.24	3,679.65	0.00	0.00	0.00
11,700.00	90.62	91.29	7,432.67	294.90	3,775.21	3,779.56	0.00	0.00	0.00
11,800.00	90.62	91.29	7,431.58	292.65	3,875.18	3,879.48	0.00	0.00	0.00
11,900.00	90.62	91.29	7,430.50	290.40	3,975.15	3,979.40	0.00	0.00	0.00
12,000.00	90.62	91.29	7,429.41	288.15	4,075.11	4,079.32	0.00	0.00	0.00
12,100.00	90.62	91.29	7,428.33	285.91	4,175.08	4,179.24	0.00	0.00	0.00
12,200.00	90.62	91.29	7,427.24	283.66	4,275.05	4,279.15	0.00	0.00	0.00
12,300.00	90.62	91.29	7,426.16	281.41	4,375.02	4,379.07	0.00	0.00	0.00
12,400.00	90.62	91.29	7,425.08	279.16	4,474.99	4,478.99	0.00	0.00	0.00
12,500.00	90.62	91.29	7,423.99	276.91	4,574.96	4,578.91	0.00	0.00	0.00
12,600.00	90.62	91.29	7,422.91	274.66	4,674.93	4,678.83	0.00	0.00	0.00
12,700.00	90.62	91.29	7,421.82	272.41	4,774.90	4,778.74	0.00	0.00	0.00
12,800.00	90.62	91.29	7,420.74	270.16	4,874.86	4,878.66	0.00	0.00	0.00
12,900.00	90.62	91.29	7,419.65	267.91	4,974.83	4,978.58	0.00	0.00	0.00
13,000.00	90.62	91.29	7,418.57	265.66	5,074.80	5,078.50	0.00	0.00	0.00
13,100.00	90.62	91.29	7,417.48	263.42	5,174.77	5,178.42	0.00	0.00	0.00
13,200.00	90.62	91.29	7,416.40	261.17	5,274.74	5,278.33	0.00	0.00	0.00
13,300.00	90.62	91.29	7,415.31	258.92	5,374.71	5,378.25	0.00	0.00	0.00
13,400.00	90.62	91.29	7,414.23	256.67	5,474.68	5,478.17	0.00	0.00	0.00

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Arkansas 4-64 3-2 3AH
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 3AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3AH		
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)
13,500.00	90.62	91.29	7,413.15	254.42	5,574.65	5,578.09	0.00	0.00	0.00
13,600.00	90.62	91.29	7,412.06	252.17	5,674.62	5,678.01	0.00	0.00	0.00
13,700.00	90.62	91.29	7,410.98	249.92	5,774.58	5,777.92	0.00	0.00	0.00
13,800.00	90.62	91.29	7,409.89	247.67	5,874.55	5,877.84	0.00	0.00	0.00
13,900.00	90.62	91.29	7,408.81	245.42	5,974.52	5,977.76	0.00	0.00	0.00
14,000.00	90.62	91.29	7,407.72	243.18	6,074.49	6,077.68	0.00	0.00	0.00
14,100.00	90.62	91.29	7,406.64	240.93	6,174.46	6,177.60	0.00	0.00	0.00
14,200.00	90.62	91.29	7,405.55	238.68	6,274.43	6,277.52	0.00	0.00	0.00
14,300.00	90.62	91.29	7,404.47	236.43	6,374.40	6,377.43	0.00	0.00	0.00
14,400.00	90.62	91.29	7,403.38	234.18	6,474.37	6,477.35	0.00	0.00	0.00
14,500.00	90.62	91.29	7,402.30	231.93	6,574.33	6,577.27	0.00	0.00	0.00
14,600.00	90.62	91.29	7,401.22	229.68	6,674.30	6,677.19	0.00	0.00	0.00
14,700.00	90.62	91.29	7,400.13	227.43	6,774.27	6,777.11	0.00	0.00	0.00
14,800.00	90.62	91.29	7,399.05	225.18	6,874.24	6,877.02	0.00	0.00	0.00
14,900.00	90.62	91.29	7,397.96	222.93	6,974.21	6,976.94	0.00	0.00	0.00
15,000.00	90.62	91.29	7,396.88	220.69	7,074.18	7,076.86	0.00	0.00	0.00
15,100.00	90.62	91.29	7,395.79	218.44	7,174.15	7,176.78	0.00	0.00	0.00
15,200.00	90.62	91.29	7,394.71	216.19	7,274.12	7,276.70	0.00	0.00	0.00
15,300.00	90.62	91.29	7,393.62	213.94	7,374.09	7,376.61	0.00	0.00	0.00
15,400.00	90.62	91.29	7,392.54	211.69	7,474.05	7,476.53	0.00	0.00	0.00
15,500.00	90.62	91.29	7,391.45	209.44	7,574.02	7,576.45	0.00	0.00	0.00
15,600.00	90.62	91.29	7,390.37	207.19	7,673.99	7,676.37	0.00	0.00	0.00
15,700.00	90.62	91.29	7,389.29	204.94	7,773.96	7,776.29	0.00	0.00	0.00
15,800.00	90.62	91.29	7,388.20	202.69	7,873.93	7,876.20	0.00	0.00	0.00
15,900.00	90.62	91.29	7,387.12	200.44	7,973.90	7,976.12	0.00	0.00	0.00
16,000.00	90.62	91.29	7,386.03	198.20	8,073.87	8,076.04	0.00	0.00	0.00
16,100.00	90.62	91.29	7,384.95	195.95	8,173.84	8,175.96	0.00	0.00	0.00
16,200.00	90.62	91.29	7,383.86	193.70	8,273.80	8,275.88	0.00	0.00	0.00
16,300.00	90.62	91.29	7,382.78	191.45	8,373.77	8,375.79	0.00	0.00	0.00
16,400.00	90.62	91.29	7,381.69	189.20	8,473.74	8,475.71	0.00	0.00	0.00
16,500.00	90.62	91.29	7,380.61	186.95	8,573.71	8,575.63	0.00	0.00	0.00
16,600.00	90.62	91.29	7,379.52	184.70	8,673.68	8,675.55	0.00	0.00	0.00
16,700.00	90.62	91.29	7,378.44	182.45	8,773.65	8,775.47	0.00	0.00	0.00
16,800.00	90.62	91.29	7,377.36	180.20	8,873.62	8,875.38	0.00	0.00	0.00
16,900.00	90.62	91.29	7,376.27	177.95	8,973.59	8,975.30	0.00	0.00	0.00
17,000.00	90.62	91.29	7,375.19	175.71	9,073.56	9,075.22	0.00	0.00	0.00
17,100.00	90.62	91.29	7,374.10	173.46	9,173.52	9,175.14	0.00	0.00	0.00
17,200.00	90.62	91.29	7,373.02	171.21	9,273.49	9,275.06	0.00	0.00	0.00
17,300.00	90.62	91.29	7,371.93	168.96	9,373.46	9,374.97	0.00	0.00	0.00
17,400.00	90.62	91.29	7,370.85	166.71	9,473.43	9,474.89	0.00	0.00	0.00
17,500.00	90.62	91.29	7,369.76	164.46	9,573.40	9,574.81	0.00	0.00	0.00
17,600.00	90.62	91.29	7,368.68	162.21	9,673.37	9,674.73	0.00	0.00	0.00
17,662.63	90.62	91.29	7,368.00	160.87	9,735.98	9,737.31	0.00	0.00	0.00
BHL: 2483' FSL, 325' FEL - Arkansas 4-64 3-2 3AH BHL									

ConocoPhillips

Planning Report

Database:	EDT 14 Central Planning	Local Co-ordinate Reference:	Well Arkansas 4-64 3-2 3AH
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 3AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	Arkansas 4-64 3-2 3AH		
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 3A - plan hits target center - Point	0.00	0.00	7,368.00	160.87	9,735.98	1,692,533.655	3,278,594.689	39° 43' 50.300 N	104° 30' 34.040 W
Arkansas 4-64 3-2 3A - plan hits target center - Point	0.00	0.00	7,474.00	380.61	-34.73	1,692,650.574	3,268,822.269	39° 43' 52.490 N	104° 32' 39.100 W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,895.00	1,895.00	Surface	9-5/8	12-1/4
17,662.63	7,368.00	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	
1,695.00	1,695.00	Fox Hills Base		0.00	
1,895.00	1,895.00	Surface Casing		0.00	
7,466.07	7,330.00	Niobrara Top		0.00	
7,774.93	7,464.00	C 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: 2103' FSL, 495' FWL
6,861.87	6,785.21	318.41	-602.71	KOP: 2421' FSL, 108' FEL
7,888.88	7,474.00	380.61	-34.72	BPI: 2483' FSL, 460' FWL
17,662.63	7,368.00	160.87	9,735.98	BHL: 2483' FSL, 325' FEL