



# ConocoPhillips

## Arapahoe County, Colorado

### Arkansas 4-64 3-2 3DH

### Design A

#### Casing Depths

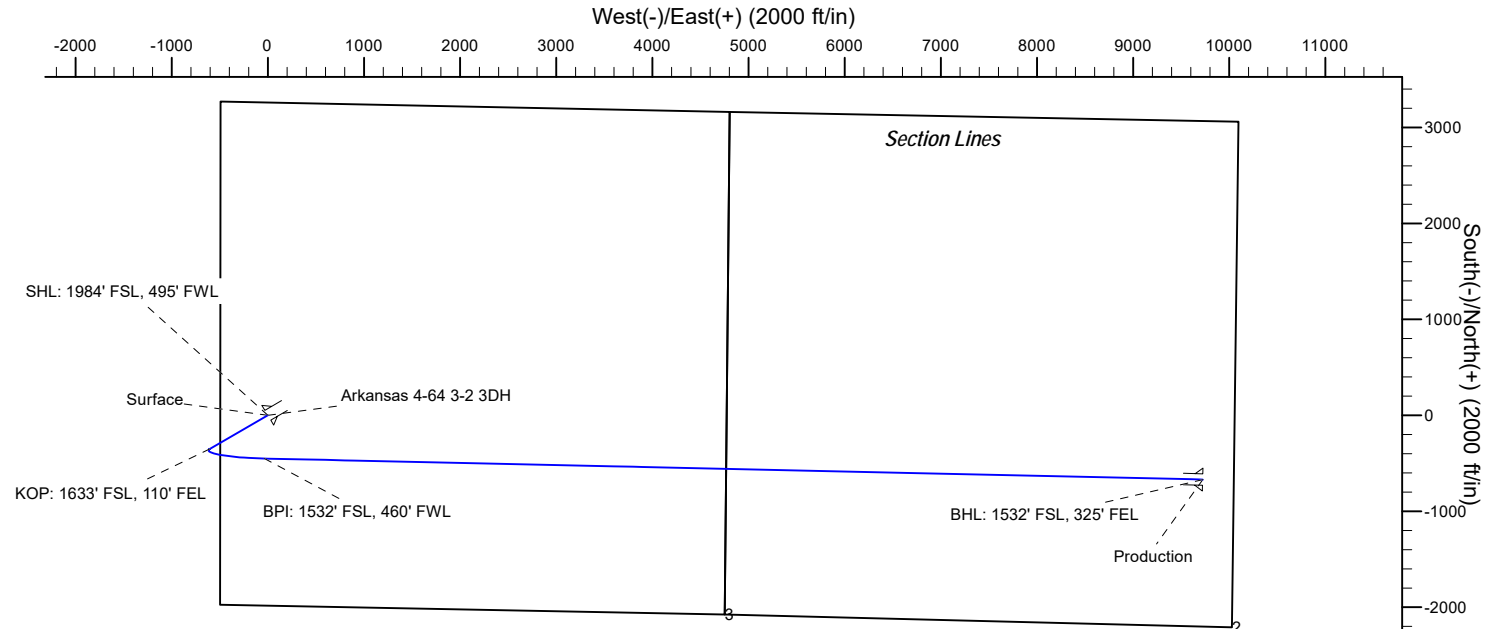
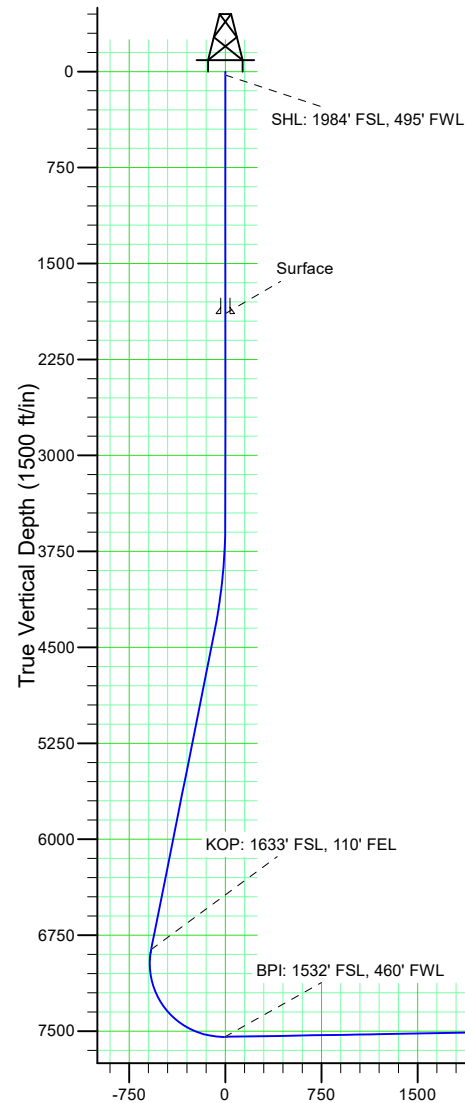
TVD	MD	Name	Size
1892.00	1892.00	Surface	9-5/8
7373.00	17729.56	Production	5-1/2

Ground Level: 5609.90  
Surface Location Latitude: 39° 43' 47.543 N  
Surface Location Longitude: 104° 32' 38.658 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
4400.34	13.51	239.87	4392.03	-53.01	-91.35	1.50	-87.49
6942.05	13.51	239.87	6863.45	-350.94	-604.73	0.00	-579.20
7967.03	91.01	91.28	7545.00	-450.62	-35.35	10.00	-4.32
17729.56	91.01	91.28	7373.00	-669.36	9723.22	0.00	9746.23



#### Wellbore Targets

Name	TVD	Latitude	Longitude
Arkansas 4-64 3-2 3DH BHL	7373.00	39° 43' 40.910 N	104° 30' 34.210 W
Arkansas 4-64 3-2 3DH BPI	7545.00	39° 43' 43.090 N	104° 32' 39.110 W

# **ConocoPhillips RBU Gold Data**

**Niobrara Central Zone**

**Arkansas**

**Arkansas 4-64 3-2 3DH**

**Arkansas 4-64 3-2 3DH**

**Plan: Design A**

## **Standard Planning Report**

**13 December, 2017**

# ConocoPhillips

## Planning Report

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

<b>Project</b>	Niobrara Central Zone, Colorado Central Zone, FIPS Zone: 0502		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 3DH					
Well Position	+N/-S	-3,268.89 ft	Northing:	1,692,150.440 usft	Latitude:	39° 43' 47.543 N
	+E/-W	490.93 ft	Easting:	3,268,862.100 usft	Longitude:	104° 32' 38.658 W
Position Uncertainty		2.00 ft	Wellhead Elevation:		Ground Level:	5,609.90 ft

<b>Wellbore</b>	Arkansas 4-64 3-2 3DH					
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>	
	BGGM2017	10/3/2017	8.19	66.39	52,017.47389555	
	BGGM2017	1/1/2018	8.17	66.38	51,988.60951487	

<b>Design</b>	Design A				
<b>Audit Notes:</b>					
<b>Version:</b>	0	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	93.94	

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

Plan Survey Tool Program		Date 12/13/2017			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	1,892.00	Design A (Arkansas 4-64 3-2 3DH)	Gyro-BM-MS	
				Gyro - bat/mem drop m/s	
2	1,892.00	3,500.00	Design A (Arkansas 4-64 3-2 3DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
3	3,500.00	4,400.34	Design A (Arkansas 4-64 3-2 3DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
4	4,400.34	6,942.05	Design A (Arkansas 4-64 3-2 3DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
5	6,942.05	7,967.03	Design A (Arkansas 4-64 3-2 3DH)	MWD+IFR_No SAG	
				MWD + IFR (No SAG) corre	
6	7,967.03	17,729.56	Design A (Arkansas 4-64 3-2 3DH)	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	
4,400.34	13.51	239.87	4,392.03	-53.01	-91.35	1.50	1.50	0.00	239.87	
6,942.05	13.51	239.87	6,863.45	-350.94	-604.73	0.00	0.00	0.00	0.00	
7,967.03	91.01	91.28	7,545.00	-450.62	-35.35	10.00	7.56	-14.50	-147.74	Arkansas 4-64 3-2 ;
17,729.56	91.01	91.28	7,373.00	-669.36	9,723.22	0.00	0.00	0.00	0.00	Arkansas 4-64 3-2 ;

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<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Arkansas 4-64 3-2 3DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Project:</b>	Niobrara Central Zone	<b>MD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Site:</b>	Arkansas	<b>North Reference:</b>	True
<b>Well:</b>	Arkansas 4-64 3-2 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Arkansas 4-64 3-2 3DH		
<b>Design:</b>	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: 1984' 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
1,692.00	0.00	0.00	1,692.00	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
1,892.00	0.00	0.00	1,892.00	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	239.87	3,599.99	-0.66	-1.13	-1.08	1.50	1.50	0.00
3,700.00	3.00	239.87	3,699.91	-2.63	-4.53	-4.34	1.50	1.50	0.00
3,800.00	4.50	239.87	3,799.69	-5.91	-10.18	-9.75	1.50	1.50	0.00
3,900.00	6.00	239.87	3,899.27	-10.50	-18.10	-17.33	1.50	1.50	0.00
4,000.00	7.50	239.87	3,998.57	-16.40	-28.26	-27.07	1.50	1.50	0.00
4,100.00	9.00	239.87	4,097.54	-23.60	-40.67	-38.96	1.50	1.50	0.00
4,200.00	10.50	239.87	4,196.09	-32.10	-55.32	-52.99	1.50	1.50	0.00
4,300.00	12.00	239.87	4,294.16	-41.90	-72.19	-69.15	1.50	1.50	0.00
4,400.34	13.51	239.87	4,392.03	-53.01	-91.35	-87.49	1.50	1.50	0.00
4,500.00	13.51	239.87	4,488.93	-64.69	-111.48	-106.77	0.00	0.00	0.00

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## Planning Report

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<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Project:</b>	Niobrara Central Zone	<b>MD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Site:</b>	Arkansas	<b>North Reference:</b>	True
<b>Well:</b>	Arkansas 4-64 3-2 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Arkansas 4-64 3-2 3DH		
<b>Design:</b>	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	13.51	239.87	4,586.17	-76.42	-131.68	-126.12	0.00	0.00	0.00
4,700.00	13.51	239.87	4,683.40	-88.14	-151.88	-145.47	0.00	0.00	0.00
4,800.00	13.51	239.87	4,780.64	-99.86	-172.08	-164.81	0.00	0.00	0.00
4,900.00	13.51	239.87	4,877.87	-111.58	-192.27	-184.16	0.00	0.00	0.00
5,000.00	13.51	239.87	4,975.11	-123.30	-212.47	-203.50	0.00	0.00	0.00
5,100.00	13.51	239.87	5,072.34	-135.02	-232.67	-222.85	0.00	0.00	0.00
5,200.00	13.51	239.87	5,169.57	-146.75	-252.87	-242.19	0.00	0.00	0.00
5,300.00	13.51	239.87	5,266.81	-158.47	-273.07	-261.54	0.00	0.00	0.00
5,400.00	13.51	239.87	5,364.04	-170.19	-293.27	-280.89	0.00	0.00	0.00
5,500.00	13.51	239.87	5,461.28	-181.91	-313.46	-300.23	0.00	0.00	0.00
5,600.00	13.51	239.87	5,558.51	-193.63	-333.66	-319.58	0.00	0.00	0.00
5,700.00	13.51	239.87	5,655.75	-205.35	-353.86	-338.92	0.00	0.00	0.00
5,800.00	13.51	239.87	5,752.98	-217.08	-374.06	-358.27	0.00	0.00	0.00
5,900.00	13.51	239.87	5,850.22	-228.80	-394.26	-377.61	0.00	0.00	0.00
6,000.00	13.51	239.87	5,947.45	-240.52	-414.46	-396.96	0.00	0.00	0.00
6,100.00	13.51	239.87	6,044.69	-252.24	-434.65	-416.30	0.00	0.00	0.00
6,200.00	13.51	239.87	6,141.92	-263.96	-454.85	-435.65	0.00	0.00	0.00
6,300.00	13.51	239.87	6,239.16	-275.69	-475.05	-455.00	0.00	0.00	0.00
6,400.00	13.51	239.87	6,336.39	-287.41	-495.25	-474.34	0.00	0.00	0.00
6,500.00	13.51	239.87	6,433.63	-299.13	-515.45	-493.69	0.00	0.00	0.00
6,600.00	13.51	239.87	6,530.86	-310.85	-535.65	-513.03	0.00	0.00	0.00
6,700.00	13.51	239.87	6,628.10	-322.57	-555.85	-532.38	0.00	0.00	0.00
6,800.00	13.51	239.87	6,725.33	-334.29	-576.04	-551.72	0.00	0.00	0.00
6,900.00	13.51	239.87	6,822.57	-346.02	-596.24	-571.07	0.00	0.00	0.00
6,942.05	13.51	239.87	6,863.46	-350.94	-604.74	-579.21	0.00	0.00	0.00
<b>KOP: 1633' FSL, 110' FEL</b>									
6,950.00	12.84	237.96	6,871.20	-351.88	-606.29	-580.69	10.01	-8.37	-24.04
7,000.00	9.13	220.02	6,920.29	-357.87	-613.55	-587.53	10.00	-7.41	-35.88
7,050.00	7.19	186.89	6,969.80	-364.02	-616.48	-590.03	10.00	-3.88	-66.27
7,100.00	8.35	150.22	7,019.37	-370.28	-615.05	-588.17	10.00	2.32	-73.33
7,150.00	11.73	128.64	7,068.62	-376.61	-609.28	-581.97	10.00	6.75	-43.16
7,200.00	15.97	117.45	7,117.16	-382.96	-599.20	-571.48	10.00	8.49	-22.40
7,250.00	20.55	110.99	7,164.63	-389.28	-584.89	-556.77	10.00	9.16	-12.91
7,300.00	25.29	106.83	7,210.68	-395.52	-566.46	-537.96	10.00	9.47	-8.31
7,350.00	30.10	103.93	7,254.94	-401.64	-544.06	-515.19	10.00	9.63	-5.81
7,400.00	34.96	101.76	7,297.08	-407.58	-517.84	-488.63	10.00	9.73	-4.33
7,443.79	39.25	100.26	7,332.00	-412.60	-491.91	-462.42	10.00	9.78	-3.43
<b>Niobrara Top</b>									
7,450.00	39.86	100.07	7,336.79	-413.30	-488.02	-458.49	10.00	9.81	-3.07
7,500.00	44.77	98.69	7,373.75	-418.76	-454.82	-424.99	10.00	9.83	-2.76
7,550.00	49.70	97.53	7,407.69	-423.92	-418.49	-388.39	10.00	9.85	-2.32
7,600.00	54.64	96.53	7,438.35	-428.74	-379.31	-348.97	10.00	9.87	-2.00
7,650.00	59.58	95.64	7,465.49	-433.18	-337.58	-307.03	10.00	9.89	-1.77
7,700.00	64.53	94.84	7,488.92	-437.21	-293.60	-262.88	10.00	9.90	-1.60
7,750.00	69.48	94.11	7,508.44	-440.79	-247.73	-216.87	10.00	9.91	-1.47
7,800.00	74.44	93.42	7,523.92	-443.91	-200.31	-169.35	10.00	9.91	-1.38
7,848.74	79.27	92.77	7,535.00	-446.47	-152.92	-121.90	10.00	9.92	-1.32
<b>D Chalk Top</b>									
7,850.00	79.40	92.76	7,535.23	-446.53	-151.69	-120.66	10.00	9.92	-1.29
7,900.00	84.36	92.12	7,542.29	-448.63	-102.25	-71.20	10.00	9.92	-1.27
7,950.00	89.32	91.50	7,545.05	-450.21	-52.37	-21.33	10.00	9.92	-1.25
7,967.03	91.01	91.28	7,545.00	-450.62	-35.35	-4.32	10.00	9.92	-1.25
<b>BPI: 1532' FSL, 460' FWL - Arkansas 4-64 3-2 3DH BPI</b>									

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## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Arkansas 4-64 3-2 3DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Project:</b>	Niobrara Central Zone	<b>MD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Site:</b>	Arkansas	<b>North Reference:</b>	True
<b>Well:</b>	Arkansas 4-64 3-2 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Arkansas 4-64 3-2 3DH		
<b>Design:</b>	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	91.01	91.28	7,544.42	-451.36	-2.39	28.62	0.00	0.00	0.00
8,100.00	91.01	91.28	7,542.66	-453.60	97.57	128.49	0.00	0.00	0.00
8,200.00	91.01	91.28	7,540.90	-455.84	197.53	228.37	0.00	0.00	0.00
8,300.00	91.01	91.28	7,539.13	-458.08	297.49	328.25	0.00	0.00	0.00
8,400.00	91.01	91.28	7,537.37	-460.32	397.45	428.13	0.00	0.00	0.00
8,500.00	91.01	91.28	7,535.61	-462.57	497.41	528.00	0.00	0.00	0.00
8,600.00	91.01	91.28	7,533.85	-464.81	597.37	627.88	0.00	0.00	0.00
8,700.00	91.01	91.28	7,532.09	-467.05	697.33	727.76	0.00	0.00	0.00
8,800.00	91.01	91.28	7,530.32	-469.29	797.29	827.63	0.00	0.00	0.00
8,900.00	91.01	91.28	7,528.56	-471.53	897.25	927.51	0.00	0.00	0.00
9,000.00	91.01	91.28	7,526.80	-473.77	997.21	1,027.39	0.00	0.00	0.00
9,100.00	91.01	91.28	7,525.04	-476.01	1,097.17	1,127.27	0.00	0.00	0.00
9,200.00	91.01	91.28	7,523.28	-478.25	1,197.12	1,227.14	0.00	0.00	0.00
9,300.00	91.01	91.28	7,521.52	-480.50	1,297.08	1,327.02	0.00	0.00	0.00
9,400.00	91.01	91.28	7,519.75	-482.74	1,397.04	1,426.90	0.00	0.00	0.00
9,500.00	91.01	91.28	7,517.99	-484.98	1,497.00	1,526.78	0.00	0.00	0.00
9,600.00	91.01	91.28	7,516.23	-487.22	1,596.96	1,626.65	0.00	0.00	0.00
9,700.00	91.01	91.28	7,514.47	-489.46	1,696.92	1,726.53	0.00	0.00	0.00
9,800.00	91.01	91.28	7,512.71	-491.70	1,796.88	1,826.41	0.00	0.00	0.00
9,900.00	91.01	91.28	7,510.94	-493.94	1,896.84	1,926.28	0.00	0.00	0.00
10,000.00	91.01	91.28	7,509.18	-496.18	1,996.80	2,026.16	0.00	0.00	0.00
10,100.00	91.01	91.28	7,507.42	-498.43	2,096.76	2,126.04	0.00	0.00	0.00
10,200.00	91.01	91.28	7,505.66	-500.67	2,196.72	2,225.92	0.00	0.00	0.00
10,300.00	91.01	91.28	7,503.90	-502.91	2,296.68	2,325.79	0.00	0.00	0.00
10,400.00	91.01	91.28	7,502.14	-505.15	2,396.64	2,425.67	0.00	0.00	0.00
10,500.00	91.01	91.28	7,500.37	-507.39	2,496.60	2,525.55	0.00	0.00	0.00
10,600.00	91.01	91.28	7,498.61	-509.63	2,596.56	2,625.43	0.00	0.00	0.00
10,700.00	91.01	91.28	7,496.85	-511.87	2,696.52	2,725.30	0.00	0.00	0.00
10,800.00	91.01	91.28	7,495.09	-514.11	2,796.47	2,825.18	0.00	0.00	0.00
10,900.00	91.01	91.28	7,493.33	-516.36	2,896.43	2,925.06	0.00	0.00	0.00
11,000.00	91.01	91.28	7,491.56	-518.60	2,996.39	3,024.93	0.00	0.00	0.00
11,100.00	91.01	91.28	7,489.80	-520.84	3,096.35	3,124.81	0.00	0.00	0.00
11,200.00	91.01	91.28	7,488.04	-523.08	3,196.31	3,224.69	0.00	0.00	0.00
11,300.00	91.01	91.28	7,486.28	-525.32	3,296.27	3,324.57	0.00	0.00	0.00
11,400.00	91.01	91.28	7,484.52	-527.56	3,396.23	3,424.44	0.00	0.00	0.00
11,500.00	91.01	91.28	7,482.75	-529.80	3,496.19	3,524.32	0.00	0.00	0.00
11,600.00	91.01	91.28	7,480.99	-532.04	3,596.15	3,624.20	0.00	0.00	0.00
11,700.00	91.01	91.28	7,479.23	-534.29	3,696.11	3,724.08	0.00	0.00	0.00
11,800.00	91.01	91.28	7,477.47	-536.53	3,796.07	3,823.95	0.00	0.00	0.00
11,900.00	91.01	91.28	7,475.71	-538.77	3,896.03	3,923.83	0.00	0.00	0.00
12,000.00	91.01	91.28	7,473.95	-541.01	3,995.99	4,023.71	0.00	0.00	0.00
12,100.00	91.01	91.28	7,472.18	-543.25	4,095.95	4,123.58	0.00	0.00	0.00
12,200.00	91.01	91.28	7,470.42	-545.49	4,195.91	4,223.46	0.00	0.00	0.00
12,300.00	91.01	91.28	7,468.66	-547.73	4,295.86	4,323.34	0.00	0.00	0.00
12,400.00	91.01	91.28	7,466.90	-549.97	4,395.82	4,423.22	0.00	0.00	0.00
12,500.00	91.01	91.28	7,465.14	-552.22	4,495.78	4,523.09	0.00	0.00	0.00
12,600.00	91.01	91.28	7,463.37	-554.46	4,595.74	4,622.97	0.00	0.00	0.00
12,700.00	91.01	91.28	7,461.61	-556.70	4,695.70	4,722.85	0.00	0.00	0.00
12,800.00	91.01	91.28	7,459.85	-558.94	4,795.66	4,822.73	0.00	0.00	0.00
12,900.00	91.01	91.28	7,458.09	-561.18	4,895.62	4,922.60	0.00	0.00	0.00
13,000.00	91.01	91.28	7,456.33	-563.42	4,995.58	5,022.48	0.00	0.00	0.00
13,100.00	91.01	91.28	7,454.57	-565.66	5,095.54	5,122.36	0.00	0.00	0.00
13,200.00	91.01	91.28	7,452.80	-567.90	5,195.50	5,222.23	0.00	0.00	0.00
13,300.00	91.01	91.28	7,451.04	-570.15	5,295.46	5,322.11	0.00	0.00	0.00

# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Arkansas 4-64 3-2 3DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Project:</b>	Niobrara Central Zone	<b>MD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Site:</b>	Arkansas	<b>North Reference:</b>	True
<b>Well:</b>	Arkansas 4-64 3-2 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Arkansas 4-64 3-2 3DH		
<b>Design:</b>	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	91.01	91.28	7,449.28	-572.39	5,395.42	5,421.99	0.00	0.00	0.00	
13,500.00	91.01	91.28	7,447.52	-574.63	5,495.38	5,521.87	0.00	0.00	0.00	
13,600.00	91.01	91.28	7,445.76	-576.87	5,595.34	5,621.74	0.00	0.00	0.00	
13,700.00	91.01	91.28	7,443.99	-579.11	5,695.30	5,721.62	0.00	0.00	0.00	
13,800.00	91.01	91.28	7,442.23	-581.35	5,795.26	5,821.50	0.00	0.00	0.00	
13,900.00	91.01	91.28	7,440.47	-583.59	5,895.21	5,921.38	0.00	0.00	0.00	
14,000.00	91.01	91.28	7,438.71	-585.83	5,995.17	6,021.25	0.00	0.00	0.00	
14,100.00	91.01	91.28	7,436.95	-588.08	6,095.13	6,121.13	0.00	0.00	0.00	
14,200.00	91.01	91.28	7,435.19	-590.32	6,195.09	6,221.01	0.00	0.00	0.00	
14,300.00	91.01	91.28	7,433.42	-592.56	6,295.05	6,320.88	0.00	0.00	0.00	
14,400.00	91.01	91.28	7,431.66	-594.80	6,395.01	6,420.76	0.00	0.00	0.00	
14,500.00	91.01	91.28	7,429.90	-597.04	6,494.97	6,520.64	0.00	0.00	0.00	
14,600.00	91.01	91.28	7,428.14	-599.28	6,594.93	6,620.52	0.00	0.00	0.00	
14,700.00	91.01	91.28	7,426.38	-601.52	6,694.89	6,720.39	0.00	0.00	0.00	
14,800.00	91.01	91.28	7,424.61	-603.76	6,794.85	6,820.27	0.00	0.00	0.00	
14,900.00	91.01	91.28	7,422.85	-606.01	6,894.81	6,920.15	0.00	0.00	0.00	
15,000.00	91.01	91.28	7,421.09	-608.25	6,994.77	7,020.03	0.00	0.00	0.00	
15,100.00	91.01	91.28	7,419.33	-610.49	7,094.73	7,119.90	0.00	0.00	0.00	
15,200.00	91.01	91.28	7,417.57	-612.73	7,194.69	7,219.78	0.00	0.00	0.00	
15,300.00	91.01	91.28	7,415.81	-614.97	7,294.65	7,319.66	0.00	0.00	0.00	
15,400.00	91.01	91.28	7,414.04	-617.21	7,394.60	7,419.53	0.00	0.00	0.00	
15,500.00	91.01	91.28	7,412.28	-619.45	7,494.56	7,519.41	0.00	0.00	0.00	
15,600.00	91.01	91.28	7,410.52	-621.69	7,594.52	7,619.29	0.00	0.00	0.00	
15,700.00	91.01	91.28	7,408.76	-623.94	7,694.48	7,719.17	0.00	0.00	0.00	
15,800.00	91.01	91.28	7,407.00	-626.18	7,794.44	7,819.04	0.00	0.00	0.00	
15,900.00	91.01	91.28	7,405.23	-628.42	7,894.40	7,918.92	0.00	0.00	0.00	
16,000.00	91.01	91.28	7,403.47	-630.66	7,994.36	8,018.80	0.00	0.00	0.00	
16,100.00	91.01	91.28	7,401.71	-632.90	8,094.32	8,118.68	0.00	0.00	0.00	
16,200.00	91.01	91.28	7,399.95	-635.14	8,194.28	8,218.55	0.00	0.00	0.00	
16,300.00	91.01	91.28	7,398.19	-637.38	8,294.24	8,318.43	0.00	0.00	0.00	
16,400.00	91.01	91.28	7,396.42	-639.62	8,394.20	8,418.31	0.00	0.00	0.00	
16,500.00	91.01	91.28	7,394.66	-641.87	8,494.16	8,518.18	0.00	0.00	0.00	
16,600.00	91.01	91.28	7,392.90	-644.11	8,594.12	8,618.06	0.00	0.00	0.00	
16,700.00	91.01	91.28	7,391.14	-646.35	8,694.08	8,717.94	0.00	0.00	0.00	
16,800.00	91.01	91.28	7,389.38	-648.59	8,794.04	8,817.82	0.00	0.00	0.00	
16,900.00	91.01	91.28	7,387.62	-650.83	8,894.00	8,917.69	0.00	0.00	0.00	
17,000.00	91.01	91.28	7,385.85	-653.07	8,993.95	9,017.57	0.00	0.00	0.00	
17,100.00	91.01	91.28	7,384.09	-655.31	9,093.91	9,117.45	0.00	0.00	0.00	
17,200.00	91.01	91.28	7,382.33	-657.55	9,193.87	9,217.33	0.00	0.00	0.00	
17,300.00	91.01	91.28	7,380.57	-659.80	9,293.83	9,317.20	0.00	0.00	0.00	
17,400.00	91.01	91.28	7,378.81	-662.04	9,393.79	9,417.08	0.00	0.00	0.00	
17,500.00	91.01	91.28	7,377.04	-664.28	9,493.75	9,516.96	0.00	0.00	0.00	
17,600.00	91.01	91.28	7,375.28	-666.52	9,593.71	9,616.83	0.00	0.00	0.00	
17,700.00	91.01	91.28	7,373.52	-668.76	9,693.67	9,716.71	0.00	0.00	0.00	
17,729.56	91.01	91.28	7,373.00	-669.42	9,723.22	9,746.24	0.00	0.00	0.00	
BHL: 1532' FSL, 325' FEL - Production - Arkansas 4-64 3-2 3DH BHL										



# ConocoPhillips

## Planning Report

<b>Database:</b>	EDT 14 Central Planning	<b>Local Co-ordinate Reference:</b>	Well Arkansas 4-64 3-2 3DH
<b>Company:</b>	ConocoPhillips RBU Gold Data	<b>TVD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Project:</b>	Niobrara Central Zone	<b>MD Reference:</b>	27' RKB @ 5636.90ft (27' RKB)
<b>Site:</b>	Arkansas	<b>North Reference:</b>	True
<b>Well:</b>	Arkansas 4-64 3-2 3DH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Arkansas 4-64 3-2 3DH		
<b>Design:</b>	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 3D - plan misses target center by 0.07ft at 17729.56ft MD (7373.00 TVD, -669.42 N, 9723.22 E) - Point	0.00	0.00	7,373.00	-669.36	9,723.22	1,691,583.435	3,278,591.767	39° 43' 40.910 N	104° 30' 34.210 W
Arkansas 4-64 3-2 3D - plan hits target center - Point	0.00	0.00	7,545.00	-450.62	-35.35	1,691,699.475	3,268,831.495	39° 43' 43.090 N	104° 32' 39.110 W

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
1,892.00	1,892.00	Surface	9-5/8	12-1/4
17,729.56	7,373.00	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	
1,692.00	1,692.00	Fox Hills Base		0.00	
1,892.00	1,892.00	Surface Casing		0.00	
7,443.79	7,332.00	Niobrara Top		0.00	
7,848.74	7,535.00	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: 1984' FSL, 495' FWL
6,942.05	6,863.46	-350.94	-604.74	KOP: 1633' FSL, 110' FEL
7,967.03	7,545.00	-450.62	-35.34	BPI: 1532' FSL, 460' FWL
17,729.56	7,373.00	-669.42	9,723.22	BHL: 1532' FSL, 325' FEL