

US ROCKIES REGION PLANNING

COLORADO CENTRAL ZONE - 83

ARAPAHOE_WATKINS 4-64-19-1H

WATKINS 4-64-19-1H

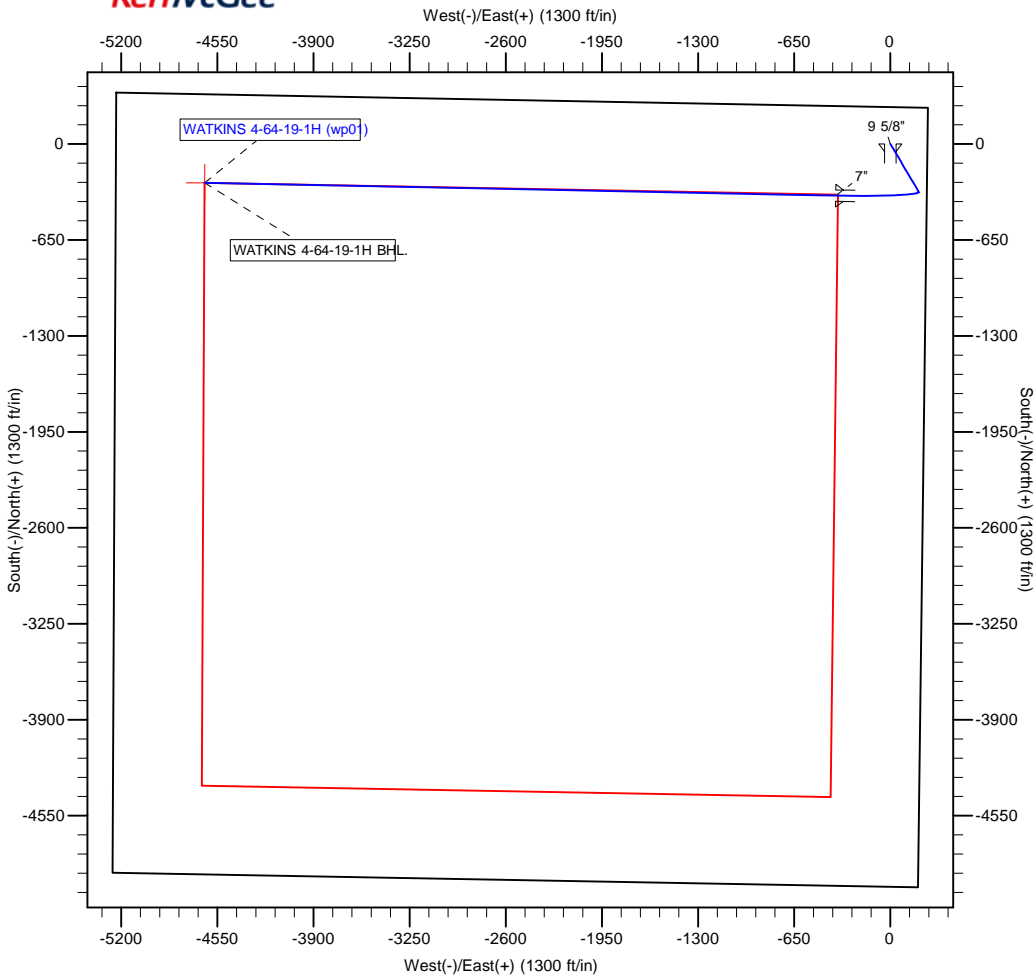
WATKINS 4-64-19-1H

Plan: WATKINS 4-64-19-1H (wp01)

Standard Planning Report

03 August, 2011





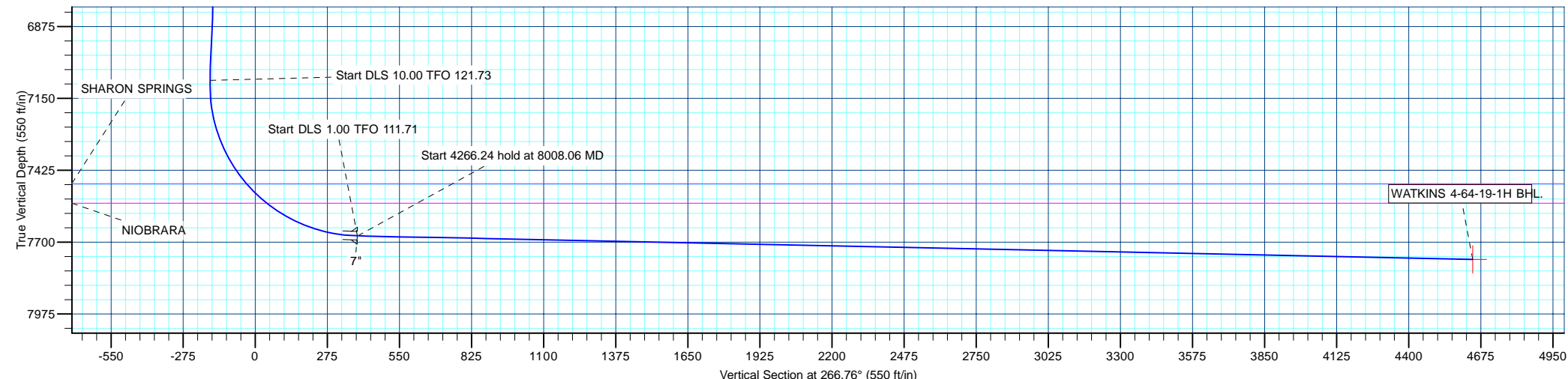
WELL DETAILS: WATKINS 4-64-19-1H						
+N/-S	+E/-W	Northing	Ground Level: Easting	5701.00 Latitude	39.695295 Longitude	Slot
0.00	0.00	1679437.57	3257544.33		-104.584764	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
WATKINS 4-64-19-1H BHL	7766.00	-262.56	-4635.85	39.694573	-104.601238	Point

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2030.00	0.00	0.00	2030.00	0.00	0.00	0.00	0.00	0.00	
2247.46	4.35	149.44	2247.25	-7.10	4.19	2.00	149.44	-3.79	
7095.68	4.35	149.44	7081.51	-323.69	191.15	0.00	0.00	-172.54	
8006.53	88.80	271.16	7676.00	-350.00	-370.00	10.00	121.73	389.20	
8008.06	88.79	271.17	7676.03	-349.97	-371.53	1.00	111.71	390.72	
12274.23	88.79	271.17	7766.00	-262.56	-4635.85	0.00	0.00	4643.28	WATKINS 4-64-19-1H BHL

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1736.00	1736.00	FOX HILLS
5171.00	5179.65	SUSSEX
6056.00	6067.21	SHANNON
7476.00	7523.99	SHARON SPRINGS
7551.00	7632.25	NIOBRARA

CASING DETAILS			
TVD	MD	Name	Size
1880.00	1880.00	9 5/8"	9-5/8
7676.00	8006.53	7"	7



Database:	edm5000p	Local Co-ordinate Reference:	Well WATKINS 4-64-19-1H
Company:	US ROCKIES REGION PLANNING	TVD Reference:	25 RKB + 5701' GL @ 5726.00ft
Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	25 RKB + 5701' GL @ 5726.00ft
Site:	ARAPAHOE_WATKINS 4-64-19-1H	North Reference:	True
Well:	WATKINS 4-64-19-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WATKINS 4-64-19-1H		
Design:	WATKINS 4-64-19-1H (wp01)		

Project	COLORADO CENTRAL ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site	ARAPAHOE_WATKINS 4-64-19-1H			
Site Position:		Northing:	1,679,437.58 ft	Latitude: 39.695295
From:	Lat/Long	Easting:	3,257,544.33 ft	Longitude: -104.584764
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence: 0.58 °

Well	WATKINS 4-64-19-1H			
Well Position	+N/-S	-0.01 ft	Northing:	1,679,437.57 ft
	+E/-W	0.00 ft	Easting:	3,257,544.33 ft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Ground Level: 5,701.00 ft

Wellbore	WATKINS 4-64-19-1H				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/3/2011	8.69	66.50	52,757

Design	WATKINS 4-64-19-1H (wp01)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	266.76

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	
2,030.00	0.00	0.00	2,030.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,247.46	4.35	149.44	2,247.25	-7.10	4.19	2.00	2.00	0.00	149.44	
7,095.68	4.35	149.44	7,081.51	-323.69	191.15	0.00	0.00	0.00	0.00	
8,006.53	88.80	271.16	7,676.00	-350.00	-370.00	10.00	9.27	13.36	121.73	
8,008.06	88.79	271.17	7,676.03	-349.97	-371.53	1.00	-0.37	0.93	111.71	
12,274.23	88.79	271.17	7,766.00	-262.56	-4,635.85	0.00	0.00	0.00	0.00	WATKINS 4-64-19-1H

Database:	edm5000p	Local Co-ordinate Reference:	Well WATKINS 4-64-19-1H
Company:	US ROCKIES REGION PLANNING	TVD Reference:	25 RKB + 5701' GL @ 5726.00ft
Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	25 RKB + 5701' GL @ 5726.00ft
Site:	ARAPAHOE_WATKINS 4-64-19-1H	North Reference:	True
Well:	WATKINS 4-64-19-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WATKINS 4-64-19-1H		
Design:	WATKINS 4-64-19-1H (wp01)		

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
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
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,736.00	0.00	0.00	1,736.00	0.00	0.00	0.00	0.00	0.00	0.00
FOX HILLS									
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,880.00	0.00	0.00	1,880.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
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
2,030.00	0.00	0.00	2,030.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
2,100.00	1.40	149.44	2,099.99	-0.74	0.43	-0.39	2.00	2.00	0.00
2,200.00	3.40	149.44	2,199.90	-4.34	2.56	-2.31	2.00	2.00	0.00
2,247.46	4.35	149.44	2,247.25	-7.10	4.19	-3.79	2.00	2.00	0.00
Start 4848.22 hold at 2247.46 MD									
2,300.00	4.35	149.44	2,299.64	-10.53	6.22	-5.62	0.00	0.00	0.00
2,400.00	4.35	149.44	2,399.35	-17.06	10.08	-9.10	0.00	0.00	0.00
2,500.00	4.35	149.44	2,499.06	-23.59	13.93	-12.58	0.00	0.00	0.00
2,600.00	4.35	149.44	2,598.78	-30.12	17.79	-16.06	0.00	0.00	0.00
2,700.00	4.35	149.44	2,698.49	-36.65	21.65	-19.54	0.00	0.00	0.00
2,800.00	4.35	149.44	2,798.20	-43.18	25.50	-23.02	0.00	0.00	0.00
2,900.00	4.35	149.44	2,897.91	-49.71	29.36	-26.50	0.00	0.00	0.00
3,000.00	4.35	149.44	2,997.62	-56.24	33.21	-29.98	0.00	0.00	0.00
3,100.00	4.35	149.44	3,097.34	-62.77	37.07	-33.46	0.00	0.00	0.00
3,200.00	4.35	149.44	3,197.05	-69.30	40.93	-36.94	0.00	0.00	0.00
3,300.00	4.35	149.44	3,296.76	-75.83	44.78	-40.42	0.00	0.00	0.00
3,400.00	4.35	149.44	3,396.47	-82.36	48.64	-43.90	0.00	0.00	0.00
3,500.00	4.35	149.44	3,496.18	-88.89	52.49	-47.38	0.00	0.00	0.00
3,600.00	4.35	149.44	3,595.90	-95.42	56.35	-50.86	0.00	0.00	0.00
3,700.00	4.35	149.44	3,695.61	-101.95	60.21	-54.34	0.00	0.00	0.00
3,800.00	4.35	149.44	3,795.32	-108.48	64.06	-57.83	0.00	0.00	0.00
3,900.00	4.35	149.44	3,895.03	-115.01	67.92	-61.31	0.00	0.00	0.00
4,000.00	4.35	149.44	3,994.74	-121.54	71.77	-64.79	0.00	0.00	0.00
4,100.00	4.35	149.44	4,094.46	-128.07	75.63	-68.27	0.00	0.00	0.00
4,200.00	4.35	149.44	4,194.17	-134.60	79.49	-71.75	0.00	0.00	0.00
4,300.00	4.35	149.44	4,293.88	-141.13	83.34	-75.23	0.00	0.00	0.00
4,400.00	4.35	149.44	4,393.59	-147.66	87.20	-78.71	0.00	0.00	0.00
4,500.00	4.35	149.44	4,493.30	-154.19	91.06	-82.19	0.00	0.00	0.00

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Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	25 RKB + 5701' GL @ 5726.00ft
Site:	ARAPAHOE_WATKINS 4-64-19-1H	North Reference:	True
Well:	WATKINS 4-64-19-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WATKINS 4-64-19-1H		
Design:	WATKINS 4-64-19-1H (wp01)		

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	4.35	149.44	4,593.02	-160.72	94.91	-85.67	0.00	0.00	0.00
4,700.00	4.35	149.44	4,692.73	-167.25	98.77	-89.15	0.00	0.00	0.00
4,800.00	4.35	149.44	4,792.44	-173.78	102.62	-92.63	0.00	0.00	0.00
4,900.00	4.35	149.44	4,892.15	-180.31	106.48	-96.11	0.00	0.00	0.00
5,000.00	4.35	149.44	4,991.87	-186.84	110.34	-99.59	0.00	0.00	0.00
5,100.00	4.35	149.44	5,091.58	-193.37	114.19	-103.07	0.00	0.00	0.00
5,179.65	4.35	149.44	5,171.00	-198.57	117.26	-105.85	0.00	0.00	0.00
SUSSEX									
5,200.00	4.35	149.44	5,191.29	-199.90	118.05	-106.56	0.00	0.00	0.00
5,300.00	4.35	149.44	5,291.00	-206.43	121.90	-110.04	0.00	0.00	0.00
5,400.00	4.35	149.44	5,390.71	-212.96	125.76	-113.52	0.00	0.00	0.00
5,500.00	4.35	149.44	5,490.43	-219.49	129.62	-117.00	0.00	0.00	0.00
5,600.00	4.35	149.44	5,590.14	-226.02	133.47	-120.48	0.00	0.00	0.00
5,700.00	4.35	149.44	5,689.85	-232.55	137.33	-123.96	0.00	0.00	0.00
5,800.00	4.35	149.44	5,789.56	-239.08	141.18	-127.44	0.00	0.00	0.00
5,900.00	4.35	149.44	5,889.27	-245.61	145.04	-130.92	0.00	0.00	0.00
6,000.00	4.35	149.44	5,988.99	-252.14	148.90	-134.40	0.00	0.00	0.00
6,067.21	4.35	149.44	6,056.00	-256.53	151.49	-136.74	0.00	0.00	0.00
SHANNON									
6,100.00	4.35	149.44	6,088.70	-258.67	152.75	-137.88	0.00	0.00	0.00
6,200.00	4.35	149.44	6,188.41	-265.20	156.61	-141.36	0.00	0.00	0.00
6,300.00	4.35	149.44	6,288.12	-271.73	160.47	-144.84	0.00	0.00	0.00
6,400.00	4.35	149.44	6,387.83	-278.26	164.32	-148.32	0.00	0.00	0.00
6,500.00	4.35	149.44	6,487.55	-284.79	168.18	-151.80	0.00	0.00	0.00
6,600.00	4.35	149.44	6,587.26	-291.32	172.03	-155.29	0.00	0.00	0.00
6,700.00	4.35	149.44	6,686.97	-297.85	175.89	-158.77	0.00	0.00	0.00
6,800.00	4.35	149.44	6,786.68	-304.38	179.75	-162.25	0.00	0.00	0.00
6,900.00	4.35	149.44	6,886.39	-310.91	183.60	-165.73	0.00	0.00	0.00
7,000.00	4.35	149.44	6,986.11	-317.44	187.46	-169.21	0.00	0.00	0.00
7,095.68	4.35	149.44	7,081.51	-323.69	191.15	-172.54	0.00	0.00	0.00
Start DLS 10.00 TFO 121.73									
7,100.00	4.14	154.53	7,085.82	-323.97	191.30	-172.67	10.00	-4.88	118.02
7,200.00	8.94	246.97	7,185.33	-330.28	185.69	-166.71	10.00	4.80	92.44
7,300.00	18.50	260.10	7,282.39	-336.06	162.85	-143.59	10.00	9.57	13.13
7,400.00	28.36	264.36	7,374.03	-341.14	123.48	-103.99	10.00	9.86	4.26
7,500.00	38.29	266.54	7,457.49	-345.35	68.78	-49.14	10.00	9.93	2.18
7,523.99	40.68	266.92	7,476.00	-346.22	53.55	-33.88	10.00	9.95	1.60
SHARON SPRINGS									
7,600.00	48.25	267.93	7,530.21	-348.58	0.40	19.31	10.00	9.96	1.32
7,632.25	51.46	268.29	7,551.00	-349.39	-24.24	43.96	10.00	9.96	1.10
NIOBRARA									
7,700.00	58.22	268.94	7,589.99	-350.71	-79.58	99.28	10.00	9.97	0.97
7,800.00	68.19	269.76	7,635.02	-351.70	-168.72	188.34	10.00	9.97	0.81
7,900.00	78.17	270.46	7,663.92	-351.50	-264.32	283.77	10.00	9.98	0.71
8,000.00	88.15	271.12	7,675.83	-350.13	-363.47	382.69	10.00	9.98	0.66
8,006.53	88.80	271.16	7,676.00	-350.00	-370.00	389.20	10.00	9.98	0.65
Start DLS 1.00 TFO 111.71 - 7"									
8,008.06	88.79	271.17	7,676.03	-349.97	-371.53	390.72	1.00	-0.37	0.93
Start 4266.17 hold at 8008.06 MD									
8,100.00	88.79	271.17	7,677.97	-348.09	-463.43	482.37	0.00	0.00	0.00
8,200.00	88.79	271.17	7,680.08	-346.04	-563.38	582.05	0.00	0.00	0.00
8,300.00	88.79	271.17	7,682.19	-343.99	-663.34	681.73	0.00	0.00	0.00
8,400.00	88.79	271.17	7,684.30	-341.94	-763.30	781.41	0.00	0.00	0.00

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Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	25 RKB + 5701' GL @ 5726.00ft
Site:	ARAPAHOE_WATKINS 4-64-19-1H	North Reference:	True
Well:	WATKINS 4-64-19-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WATKINS 4-64-19-1H		
Design:	WATKINS 4-64-19-1H (wp01)		

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)	
8,500.00	88.79	271.17	7,686.41	-339.89	-863.25	881.09	0.00	0.00	0.00	
8,600.00	88.79	271.17	7,688.52	-337.84	-963.21	980.77	0.00	0.00	0.00	
8,700.00	88.79	271.17	7,690.62	-335.79	-1,063.17	1,080.45	0.00	0.00	0.00	
8,800.00	88.79	271.17	7,692.73	-333.74	-1,163.12	1,180.14	0.00	0.00	0.00	
8,900.00	88.79	271.17	7,694.84	-331.70	-1,263.08	1,279.82	0.00	0.00	0.00	
9,000.00	88.79	271.17	7,696.95	-329.65	-1,363.04	1,379.50	0.00	0.00	0.00	
9,100.00	88.79	271.17	7,699.06	-327.60	-1,462.99	1,479.18	0.00	0.00	0.00	
9,200.00	88.79	271.17	7,701.17	-325.55	-1,562.95	1,578.86	0.00	0.00	0.00	
9,300.00	88.79	271.17	7,703.28	-323.50	-1,662.91	1,678.54	0.00	0.00	0.00	
9,400.00	88.79	271.17	7,705.39	-321.45	-1,762.86	1,778.22	0.00	0.00	0.00	
9,500.00	88.79	271.17	7,707.50	-319.40	-1,862.82	1,877.90	0.00	0.00	0.00	
9,600.00	88.79	271.17	7,709.60	-317.35	-1,962.78	1,977.58	0.00	0.00	0.00	
9,700.00	88.79	271.17	7,711.71	-315.30	-2,062.73	2,077.26	0.00	0.00	0.00	
9,800.00	88.79	271.17	7,713.82	-313.26	-2,162.69	2,176.94	0.00	0.00	0.00	
9,900.00	88.79	271.17	7,715.93	-311.21	-2,262.65	2,276.63	0.00	0.00	0.00	
10,000.00	88.79	271.17	7,718.04	-309.16	-2,362.61	2,376.31	0.00	0.00	0.00	
10,100.00	88.79	271.17	7,720.15	-307.11	-2,462.56	2,475.99	0.00	0.00	0.00	
10,200.00	88.79	271.17	7,722.26	-305.06	-2,562.52	2,575.67	0.00	0.00	0.00	
10,300.00	88.79	271.17	7,724.37	-303.01	-2,662.48	2,675.35	0.00	0.00	0.00	
10,400.00	88.79	271.17	7,726.48	-300.96	-2,762.43	2,775.03	0.00	0.00	0.00	
10,500.00	88.79	271.17	7,728.58	-298.91	-2,862.39	2,874.71	0.00	0.00	0.00	
10,600.00	88.79	271.17	7,730.69	-296.87	-2,962.35	2,974.39	0.00	0.00	0.00	
10,700.00	88.79	271.17	7,732.80	-294.82	-3,062.30	3,074.07	0.00	0.00	0.00	
10,800.00	88.79	271.17	7,734.91	-292.77	-3,162.26	3,173.75	0.00	0.00	0.00	
10,900.00	88.79	271.17	7,737.02	-290.72	-3,262.22	3,273.44	0.00	0.00	0.00	
11,000.00	88.79	271.17	7,739.13	-288.67	-3,362.17	3,373.12	0.00	0.00	0.00	
11,100.00	88.79	271.17	7,741.24	-286.62	-3,462.13	3,472.80	0.00	0.00	0.00	
11,200.00	88.79	271.17	7,743.35	-284.57	-3,562.09	3,572.48	0.00	0.00	0.00	
11,300.00	88.79	271.17	7,745.45	-282.52	-3,662.04	3,672.16	0.00	0.00	0.00	
11,400.00	88.79	271.17	7,747.56	-280.48	-3,762.00	3,771.84	0.00	0.00	0.00	
11,500.00	88.79	271.17	7,749.67	-278.43	-3,861.96	3,871.52	0.00	0.00	0.00	
11,600.00	88.79	271.17	7,751.78	-276.38	-3,961.91	3,971.20	0.00	0.00	0.00	
11,700.00	88.79	271.17	7,753.89	-274.33	-4,061.87	4,070.88	0.00	0.00	0.00	
11,800.00	88.79	271.17	7,756.00	-272.28	-4,161.83	4,170.56	0.00	0.00	0.00	
11,900.00	88.79	271.17	7,758.11	-270.23	-4,261.78	4,270.25	0.00	0.00	0.00	
12,000.00	88.79	271.17	7,760.22	-268.18	-4,361.74	4,369.93	0.00	0.00	0.00	
12,100.00	88.79	271.17	7,762.33	-266.13	-4,461.70	4,469.61	0.00	0.00	0.00	
12,200.00	88.79	271.17	7,764.43	-264.09	-4,561.65	4,569.29	0.00	0.00	0.00	
12,274.23	88.79	271.17	7,766.00	-262.56	-4,635.85	4,643.28	0.00	0.00	0.00	
TD at 12274.23 - WATKINS 4-64-19-1H BHL.										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
- hit/miss target										
- Shape										
WATKINS 4-64-19-1H B	0.00	0.00	7,766.00	-262.56	-4,635.85	1,679,128.31	3,252,911.36	39.694573	-104.601238	
- plan hits target center										
- Point										

Database:	edm5000p	Local Co-ordinate Reference:	Well WATKINS 4-64-19-1H
Company:	US ROCKIES REGION PLANNING	TVD Reference:	25 RKB + 5701' GL @ 5726.00ft
Project:	COLORADO CENTRAL ZONE - 83	MD Reference:	25 RKB + 5701' GL @ 5726.00ft
Site:	ARAPAHOE_WATKINS 4-64-19-1H	North Reference:	True
Well:	WATKINS 4-64-19-1H	Survey Calculation Method:	Minimum Curvature
Wellbore:	WATKINS 4-64-19-1H		
Design:	WATKINS 4-64-19-1H (wp01)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
1,880.00	1,880.00	9 5/8"	9-5/8	12-1/4	
8,006.53	7,676.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,736.00	1,736.00	FOX HILLS		0.00	
5,179.65	5,171.00	SUSSEX		0.00	
6,067.21	6,056.00	SHANNON		0.00	
7,523.99	7,476.00	SHARON SPRINGS		0.00	
7,632.25	7,551.00	NIOBRARA		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,030.00	2,030.00	0.00	0.00	Start Build 2.00	
2,247.46	2,247.25	-7.10	4.19	Start 4848.22 hold at 2247.46 MD	
7,095.68	7,081.51	-323.69	191.15	Start DLS 10.00 TFO 121.73	
8,006.53	7,676.00	-350.00	-370.00	Start DLS 1.00 TFO 111.71	
8,008.06	7,676.03	-349.97	-371.53	Start 4266.17 hold at 8008.06 MD	
12,274.23	7,766.00	-262.56	-4,635.85	TD at 12274.23	