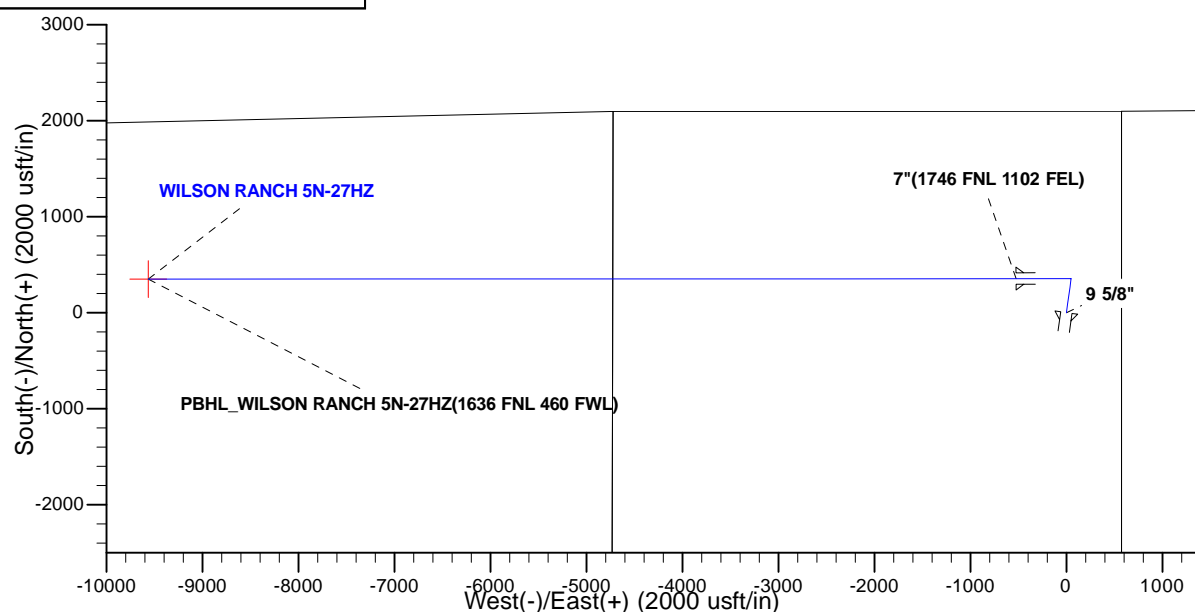
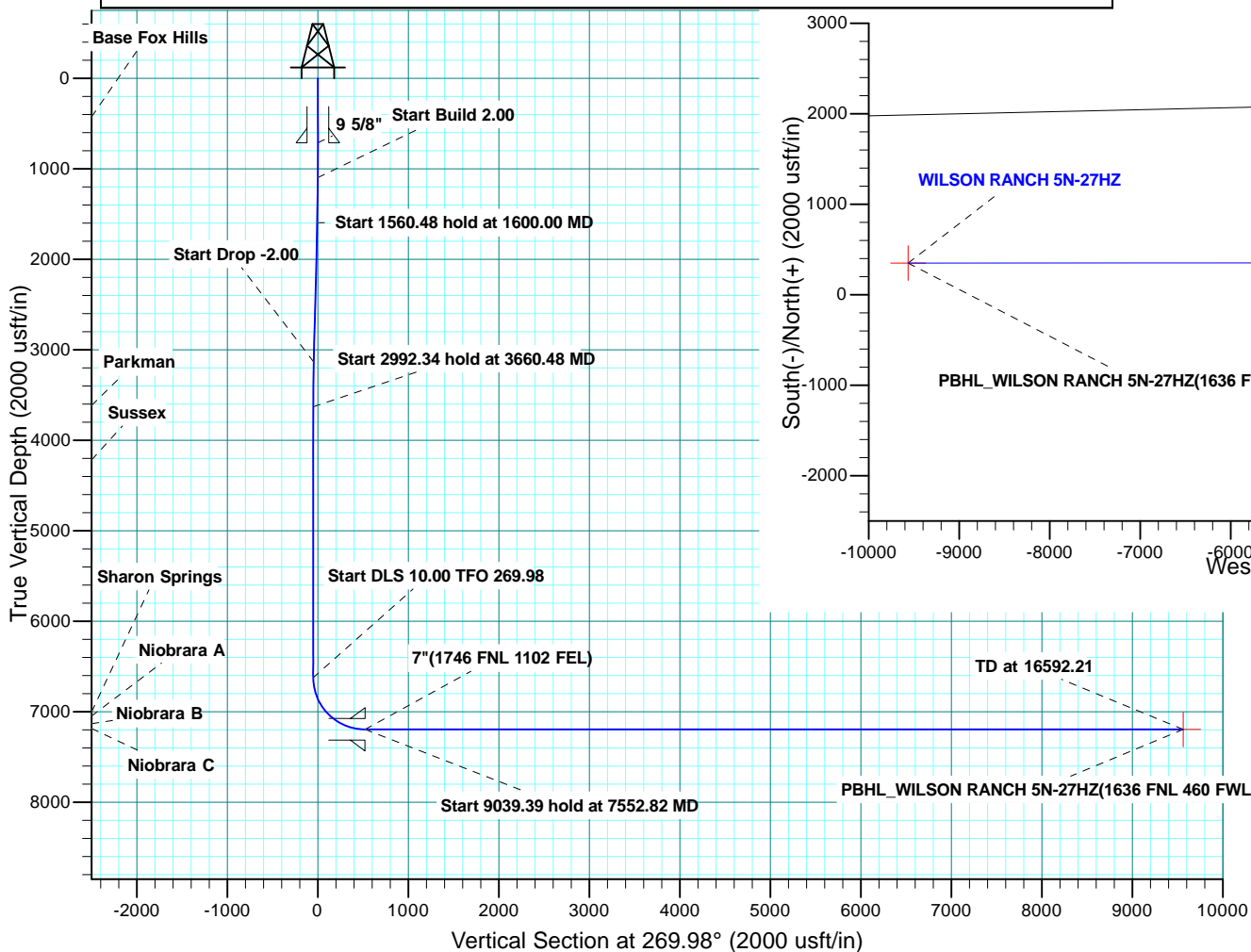


SHL: WILSON RANCH 5N-27HZ								
GL 4998 KB 17 @ 5015.00usft								
		+N-S 0.00	+E-W 0.00	Northing 14630934.47	Easting 1650796.52	Latitude 40.286143	Longitude -104.962780	
DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7197.00	351.92	-9562.35	14631282.37	1641234.03	40.287104	-104.997069	Point
- plan hits target center								
SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00
1600.00	10.00	8.03	1597.46	43.10	6.08	2.00	8.03	-6.09
3160.48	10.00	8.03	3134.24	311.41	43.92	0.00	0.00	-44.03
3660.48	0.00	0.00	3631.70	354.51	50.00	2.00	180.00	-50.12
6652.82	0.00	0.00	6624.04	354.51	50.00	0.00	0.00	-50.12
7552.82	90.00	269.98	7197.00	354.36	-522.96	10.00	269.98	522.83
16592.21	90.00	269.98	7197.00	351.92	-9562.35	0.00	0.00	9562.23
PBHL_WILSON RANCH 5N-27HZ(1636 FNL 460 FWL)								



CASING DETAILS				
TVD	MD	Name	Size	
712.00	712.00	9 5/8"	9.625	
7197.00	7552.82	7"	7.000	

FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	Inc	
427.00	427.00	Base Fox Hills	0.00	
3616.00	3644.78	Parkman	0.31	
4218.00	4246.78	Sussex	0.00	
7003.00	7066.89	Sharon Springs	41.41	
7048.00	7130.09	Niobrara A	47.73	
7132.00	7277.25	Niobrara B	62.44	
7187.00	7445.62	Niobrara C	79.28	



Scientific Drilling

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

WILSON RANCH 8 -26HZ

WILSON RANCH 5N-27HZ

PLAN A

Plan: Permit Rev-1

Standard Planning Report

30 December, 2014

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 5N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4998 KB 17 @ 5015.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4998 KB 17 @ 5015.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 5N-27HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	Permit Rev-1		

Project	WELD-NAD83-UTMFT13N		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site		WILSON RANCH 8 -26HZ			
Site Position:		Northing:	14,630,963.58 usft	Latitude:	40.286223
From:	Lat/Long	Easting:	1,650,762.21 usft	Longitude:	-104.962903
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.02

Well	WILSON RANCH 5N-27HZ, 2099 FNL 575 FEL					
Well Position	+N/-S	-29.13 usft	Northing:	14,630,934.46 usft	Latitude:	40.286143
	+E/-W	34.30 usft	Easting:	1,650,796.52 usft	Longitude:	-104.962780
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,998.00 usft

Wellbore	PLAN A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/7/2014	8.45	66.82	52,722

Design	Permit Rev-1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	269.98

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
1,600.00	10.00	8.03	1,597.46	43.10	6.08	2.00	2.00	0.00	8.03	
3,160.48	10.00	8.03	3,134.24	311.41	43.92	0.00	0.00	0.00	0.00	
3,660.48	0.00	0.00	3,631.70	354.51	50.00	2.00	-2.00	0.00	180.00	
6,652.82	0.00	0.00	6,624.04	354.51	50.00	0.00	0.00	0.00	0.00	
7,552.82	90.00	269.98	7,197.00	354.36	-522.96	10.00	10.00	-10.00	269.98	
16,592.21	90.00	269.98	7,197.00	351.92	-9,562.35	0.00	0.00	0.00	0.00	PBHL_WILSON RAN

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 5N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4998 KB 17 @ 5015.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4998 KB 17 @ 5015.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 5N-27HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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
427.00	0.00	0.00	427.00	0.00	0.00	0.00	0.00	0.00	0.00
Base Fox Hills									
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
712.00	0.00	0.00	712.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
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
Start Build 2.00									
1,200.00	2.00	8.03	1,199.98	1.73	0.24	-0.24	2.00	2.00	0.00
1,300.00	4.00	8.03	1,299.84	6.91	0.97	-0.98	2.00	2.00	0.00
1,400.00	6.00	8.03	1,399.45	15.54	2.19	-2.20	2.00	2.00	0.00
1,500.00	8.00	8.03	1,498.70	27.61	3.89	-3.90	2.00	2.00	0.00
1,600.00	10.00	8.03	1,597.46	43.10	6.08	-6.09	2.00	2.00	0.00
Start 1560.48 hold at 1600.00 MD									
1,700.00	10.00	8.03	1,695.95	60.29	8.50	-8.52	0.00	0.00	0.00
1,800.00	10.00	8.03	1,794.43	77.49	10.93	-10.96	0.00	0.00	0.00
1,900.00	10.00	8.03	1,892.91	94.68	13.35	-13.39	0.00	0.00	0.00
2,000.00	10.00	8.03	1,991.39	111.87	15.78	-15.82	0.00	0.00	0.00
2,100.00	10.00	8.03	2,089.87	129.07	18.20	-18.25	0.00	0.00	0.00
2,200.00	10.00	8.03	2,188.35	146.26	20.63	-20.68	0.00	0.00	0.00
2,300.00	10.00	8.03	2,286.83	163.46	23.05	-23.11	0.00	0.00	0.00
2,400.00	10.00	8.03	2,385.31	180.65	25.48	-25.54	0.00	0.00	0.00
2,500.00	10.00	8.03	2,483.79	197.85	27.90	-27.97	0.00	0.00	0.00
2,600.00	10.00	8.03	2,582.27	215.04	30.33	-30.40	0.00	0.00	0.00
2,700.00	10.00	8.03	2,680.75	232.24	32.75	-32.84	0.00	0.00	0.00
2,800.00	10.00	8.03	2,779.23	249.43	35.18	-35.27	0.00	0.00	0.00
2,900.00	10.00	8.03	2,877.72	266.63	37.60	-37.70	0.00	0.00	0.00
3,000.00	10.00	8.03	2,976.20	283.82	40.03	-40.13	0.00	0.00	0.00
3,100.00	10.00	8.03	3,074.68	301.02	42.46	-42.56	0.00	0.00	0.00
3,160.48	10.00	8.03	3,134.24	311.41	43.92	-44.03	0.00	0.00	0.00
Start Drop -2.00									
3,200.00	9.21	8.03	3,173.20	317.94	44.84	-44.95	2.00	-2.00	0.00
3,300.00	7.21	8.03	3,272.17	332.08	46.84	-46.95	2.00	-2.00	0.00
3,400.00	5.21	8.03	3,371.58	342.79	48.35	-48.47	2.00	-2.00	0.00
3,500.00	3.21	8.03	3,471.31	350.06	49.37	-49.49	2.00	-2.00	0.00
3,600.00	1.21	8.03	3,571.23	353.88	49.91	-50.03	2.00	-2.00	0.00
3,644.78	0.31	8.03	3,616.00	354.47	49.99	-50.12	2.00	-2.00	0.00
Parkman									
3,660.48	0.00	0.00	3,631.70	354.51	50.00	-50.12	2.00	-2.00	0.00
Start 2992.34 hold at 3660.48 MD									
3,700.00	0.00	0.00	3,671.22	354.51	50.00	-50.12	0.00	0.00	0.00
3,800.00	0.00	0.00	3,771.22	354.51	50.00	-50.12	0.00	0.00	0.00
3,900.00	0.00	0.00	3,871.22	354.51	50.00	-50.12	0.00	0.00	0.00
4,000.00	0.00	0.00	3,971.22	354.51	50.00	-50.12	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 5N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4998 KB 17 @ 5015.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4998 KB 17 @ 5015.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 5N-27HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,100.00	0.00	0.00	4,071.22	354.51	50.00	-50.12	0.00	0.00	0.00
4,200.00	0.00	0.00	4,171.22	354.51	50.00	-50.12	0.00	0.00	0.00
4,246.78	0.00	0.00	4,218.00	354.51	50.00	-50.12	0.00	0.00	0.00
Sussex									
4,300.00	0.00	0.00	4,271.22	354.51	50.00	-50.12	0.00	0.00	0.00
4,400.00	0.00	0.00	4,371.22	354.51	50.00	-50.12	0.00	0.00	0.00
4,500.00	0.00	0.00	4,471.22	354.51	50.00	-50.12	0.00	0.00	0.00
4,600.00	0.00	0.00	4,571.22	354.51	50.00	-50.12	0.00	0.00	0.00
4,700.00	0.00	0.00	4,671.22	354.51	50.00	-50.12	0.00	0.00	0.00
4,800.00	0.00	0.00	4,771.22	354.51	50.00	-50.12	0.00	0.00	0.00
4,900.00	0.00	0.00	4,871.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,000.00	0.00	0.00	4,971.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,100.00	0.00	0.00	5,071.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,200.00	0.00	0.00	5,171.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,300.00	0.00	0.00	5,271.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,400.00	0.00	0.00	5,371.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,500.00	0.00	0.00	5,471.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,600.00	0.00	0.00	5,571.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,700.00	0.00	0.00	5,671.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,800.00	0.00	0.00	5,771.22	354.51	50.00	-50.12	0.00	0.00	0.00
5,900.00	0.00	0.00	5,871.22	354.51	50.00	-50.12	0.00	0.00	0.00
6,000.00	0.00	0.00	5,971.22	354.51	50.00	-50.12	0.00	0.00	0.00
6,100.00	0.00	0.00	6,071.22	354.51	50.00	-50.12	0.00	0.00	0.00
6,200.00	0.00	0.00	6,171.22	354.51	50.00	-50.12	0.00	0.00	0.00
6,300.00	0.00	0.00	6,271.22	354.51	50.00	-50.12	0.00	0.00	0.00
6,400.00	0.00	0.00	6,371.22	354.51	50.00	-50.12	0.00	0.00	0.00
6,500.00	0.00	0.00	6,471.22	354.51	50.00	-50.12	0.00	0.00	0.00
6,600.00	0.00	0.00	6,571.22	354.51	50.00	-50.12	0.00	0.00	0.00
6,652.82	0.00	0.00	6,624.04	354.51	50.00	-50.12	0.00	0.00	0.00
Start DLS 10.00 TFO 269.98									
6,700.00	4.72	269.98	6,671.17	354.51	48.06	-48.18	10.00	10.00	0.00
6,800.00	14.72	269.98	6,769.61	354.50	31.20	-31.32	10.00	10.00	0.00
6,900.00	24.72	269.98	6,863.63	354.50	-2.50	2.37	10.00	10.00	0.00
7,000.00	34.72	269.98	6,950.36	354.48	-52.01	51.88	10.00	10.00	0.00
7,066.89	41.41	269.98	7,003.00	354.47	-93.23	93.10	10.00	10.00	0.00
Sharon Springs									
7,100.00	44.72	269.98	7,027.19	354.47	-115.83	115.71	10.00	10.00	0.00
7,130.09	47.73	269.98	7,048.00	354.46	-137.55	137.43	10.00	10.00	0.00
Niobrara A									
7,200.00	54.72	269.98	7,091.76	354.44	-192.02	191.90	10.00	10.00	0.00
7,277.25	62.44	269.98	7,132.00	354.43	-257.90	257.77	10.00	10.00	0.00
Niobrara B									
7,300.00	64.72	269.98	7,142.12	354.42	-278.27	278.14	10.00	10.00	0.00
7,400.00	74.72	269.98	7,176.74	354.40	-371.95	371.82	10.00	10.00	0.00
7,445.62	79.28	269.98	7,187.00	354.38	-416.39	416.27	10.00	10.00	0.00
Niobrara C									
7,500.00	84.72	269.98	7,194.57	354.37	-470.22	470.09	10.00	10.00	0.00
7,552.82	90.00	269.98	7,197.00	354.36	-522.96	522.84	10.00	10.00	0.00
Start 9039.39 hold at 7552.82 MD - 7"(1746 FNL 1102 FEL)									
7,600.00	90.00	269.98	7,197.00	354.34	-570.14	570.02	0.00	0.00	0.00
7,700.00	90.00	269.98	7,197.00	354.32	-670.14	670.02	0.00	0.00	0.00
7,800.00	90.00	269.98	7,197.00	354.29	-770.14	770.02	0.00	0.00	0.00
7,900.00	90.00	269.98	7,197.00	354.26	-870.14	870.02	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 5N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4998 KB 17 @ 5015.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4998 KB 17 @ 5015.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 5N-27HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,000.00	90.00	269.98	7,197.00	354.24	-970.14	970.02	0.00	0.00	0.00
8,100.00	90.00	269.98	7,197.00	354.21	-1,070.14	1,070.02	0.00	0.00	0.00
8,200.00	90.00	269.98	7,197.00	354.18	-1,170.14	1,170.02	0.00	0.00	0.00
8,300.00	90.00	269.98	7,197.00	354.15	-1,270.14	1,270.02	0.00	0.00	0.00
8,400.00	90.00	269.98	7,197.00	354.13	-1,370.14	1,370.02	0.00	0.00	0.00
8,500.00	90.00	269.98	7,197.00	354.10	-1,470.14	1,470.02	0.00	0.00	0.00
8,600.00	90.00	269.98	7,197.00	354.07	-1,570.14	1,570.02	0.00	0.00	0.00
8,700.00	90.00	269.98	7,197.00	354.05	-1,670.14	1,670.02	0.00	0.00	0.00
8,800.00	90.00	269.98	7,197.00	354.02	-1,770.14	1,770.02	0.00	0.00	0.00
8,900.00	90.00	269.98	7,197.00	353.99	-1,870.14	1,870.02	0.00	0.00	0.00
9,000.00	90.00	269.98	7,197.00	353.97	-1,970.14	1,970.02	0.00	0.00	0.00
9,100.00	90.00	269.98	7,197.00	353.94	-2,070.14	2,070.02	0.00	0.00	0.00
9,200.00	90.00	269.98	7,197.00	353.91	-2,170.14	2,170.02	0.00	0.00	0.00
9,300.00	90.00	269.98	7,197.00	353.88	-2,270.14	2,270.02	0.00	0.00	0.00
9,400.00	90.00	269.98	7,197.00	353.86	-2,370.14	2,370.02	0.00	0.00	0.00
9,500.00	90.00	269.98	7,197.00	353.83	-2,470.14	2,470.02	0.00	0.00	0.00
9,600.00	90.00	269.98	7,197.00	353.80	-2,570.14	2,570.02	0.00	0.00	0.00
9,700.00	90.00	269.98	7,197.00	353.78	-2,670.14	2,670.02	0.00	0.00	0.00
9,800.00	90.00	269.98	7,197.00	353.75	-2,770.14	2,770.02	0.00	0.00	0.00
9,900.00	90.00	269.98	7,197.00	353.72	-2,870.14	2,870.02	0.00	0.00	0.00
10,000.00	90.00	269.98	7,197.00	353.70	-2,970.14	2,970.02	0.00	0.00	0.00
10,100.00	90.00	269.98	7,197.00	353.67	-3,070.14	3,070.02	0.00	0.00	0.00
10,200.00	90.00	269.98	7,197.00	353.64	-3,170.14	3,170.02	0.00	0.00	0.00
10,300.00	90.00	269.98	7,197.00	353.62	-3,270.14	3,270.02	0.00	0.00	0.00
10,400.00	90.00	269.98	7,197.00	353.59	-3,370.14	3,370.02	0.00	0.00	0.00
10,500.00	90.00	269.98	7,197.00	353.56	-3,470.14	3,470.02	0.00	0.00	0.00
10,600.00	90.00	269.98	7,197.00	353.53	-3,570.14	3,570.02	0.00	0.00	0.00
10,700.00	90.00	269.98	7,197.00	353.51	-3,670.14	3,670.02	0.00	0.00	0.00
10,800.00	90.00	269.98	7,197.00	353.48	-3,770.14	3,770.02	0.00	0.00	0.00
10,900.00	90.00	269.98	7,197.00	353.45	-3,870.14	3,870.02	0.00	0.00	0.00
11,000.00	90.00	269.98	7,197.00	353.43	-3,970.14	3,970.02	0.00	0.00	0.00
11,100.00	90.00	269.98	7,197.00	353.40	-4,070.14	4,070.02	0.00	0.00	0.00
11,200.00	90.00	269.98	7,197.00	353.37	-4,170.14	4,170.02	0.00	0.00	0.00
11,300.00	90.00	269.98	7,197.00	353.35	-4,270.14	4,270.02	0.00	0.00	0.00
11,400.00	90.00	269.98	7,197.00	353.32	-4,370.14	4,370.02	0.00	0.00	0.00
11,500.00	90.00	269.98	7,197.00	353.29	-4,470.14	4,470.02	0.00	0.00	0.00
11,600.00	90.00	269.98	7,197.00	353.27	-4,570.14	4,570.02	0.00	0.00	0.00
11,700.00	90.00	269.98	7,197.00	353.24	-4,670.14	4,670.02	0.00	0.00	0.00
11,800.00	90.00	269.98	7,197.00	353.21	-4,770.14	4,770.02	0.00	0.00	0.00
11,900.00	90.00	269.98	7,197.00	353.18	-4,870.14	4,870.02	0.00	0.00	0.00
12,000.00	90.00	269.98	7,197.00	353.16	-4,970.14	4,970.02	0.00	0.00	0.00
12,100.00	90.00	269.98	7,197.00	353.13	-5,070.14	5,070.02	0.00	0.00	0.00
12,200.00	90.00	269.98	7,197.00	353.10	-5,170.14	5,170.02	0.00	0.00	0.00
12,300.00	90.00	269.98	7,197.00	353.08	-5,270.14	5,270.02	0.00	0.00	0.00
12,400.00	90.00	269.98	7,197.00	353.05	-5,370.14	5,370.02	0.00	0.00	0.00
12,500.00	90.00	269.98	7,197.00	353.02	-5,470.14	5,470.02	0.00	0.00	0.00
12,600.00	90.00	269.98	7,197.00	353.00	-5,570.14	5,570.02	0.00	0.00	0.00
12,700.00	90.00	269.98	7,197.00	352.97	-5,670.14	5,670.02	0.00	0.00	0.00
12,800.00	90.00	269.98	7,197.00	352.94	-5,770.14	5,770.02	0.00	0.00	0.00
12,900.00	90.00	269.98	7,197.00	352.91	-5,870.14	5,870.02	0.00	0.00	0.00
13,000.00	90.00	269.98	7,197.00	352.89	-5,970.14	5,970.02	0.00	0.00	0.00
13,100.00	90.00	269.98	7,197.00	352.86	-6,070.14	6,070.02	0.00	0.00	0.00
13,200.00	90.00	269.98	7,197.00	352.83	-6,170.14	6,170.02	0.00	0.00	0.00
13,300.00	90.00	269.98	7,197.00	352.81	-6,270.14	6,270.02	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 5N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4998 KB 17 @ 5015.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4998 KB 17 @ 5015.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 5N-27HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	Permit Rev-1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,400.00	90.00	269.98	7,197.00	352.78	-6,370.14	6,370.02	0.00	0.00	0.00
13,500.00	90.00	269.98	7,197.00	352.75	-6,470.14	6,470.02	0.00	0.00	0.00
13,600.00	90.00	269.98	7,197.00	352.73	-6,570.14	6,570.02	0.00	0.00	0.00
13,700.00	90.00	269.98	7,197.00	352.70	-6,670.14	6,670.02	0.00	0.00	0.00
13,800.00	90.00	269.98	7,197.00	352.67	-6,770.14	6,770.02	0.00	0.00	0.00
13,900.00	90.00	269.98	7,197.00	352.65	-6,870.14	6,870.02	0.00	0.00	0.00
14,000.00	90.00	269.98	7,197.00	352.62	-6,970.14	6,970.02	0.00	0.00	0.00
14,100.00	90.00	269.98	7,197.00	352.59	-7,070.14	7,070.02	0.00	0.00	0.00
14,200.00	90.00	269.98	7,197.00	352.56	-7,170.14	7,170.02	0.00	0.00	0.00
14,300.00	90.00	269.98	7,197.00	352.54	-7,270.14	7,270.02	0.00	0.00	0.00
14,400.00	90.00	269.98	7,197.00	352.51	-7,370.14	7,370.02	0.00	0.00	0.00
14,500.00	90.00	269.98	7,197.00	352.48	-7,470.14	7,470.02	0.00	0.00	0.00
14,600.00	90.00	269.98	7,197.00	352.46	-7,570.14	7,570.02	0.00	0.00	0.00
14,700.00	90.00	269.98	7,197.00	352.43	-7,670.14	7,670.02	0.00	0.00	0.00
14,800.00	90.00	269.98	7,197.00	352.40	-7,770.14	7,770.02	0.00	0.00	0.00
14,900.00	90.00	269.98	7,197.00	352.38	-7,870.14	7,870.02	0.00	0.00	0.00
15,000.00	90.00	269.98	7,197.00	352.35	-7,970.14	7,970.02	0.00	0.00	0.00
15,100.00	90.00	269.98	7,197.00	352.32	-8,070.14	8,070.02	0.00	0.00	0.00
15,200.00	90.00	269.98	7,197.00	352.30	-8,170.14	8,170.02	0.00	0.00	0.00
15,300.00	90.00	269.98	7,197.00	352.27	-8,270.14	8,270.02	0.00	0.00	0.00
15,400.00	90.00	269.98	7,197.00	352.24	-8,370.14	8,370.02	0.00	0.00	0.00
15,500.00	90.00	269.98	7,197.00	352.21	-8,470.14	8,470.02	0.00	0.00	0.00
15,600.00	90.00	269.98	7,197.00	352.19	-8,570.14	8,570.02	0.00	0.00	0.00
15,700.00	90.00	269.98	7,197.00	352.16	-8,670.14	8,670.02	0.00	0.00	0.00
15,800.00	90.00	269.98	7,197.00	352.13	-8,770.14	8,770.02	0.00	0.00	0.00
15,900.00	90.00	269.98	7,197.00	352.11	-8,870.14	8,870.02	0.00	0.00	0.00
16,000.00	90.00	269.98	7,197.00	352.08	-8,970.14	8,970.02	0.00	0.00	0.00
16,100.00	90.00	269.98	7,197.00	352.05	-9,070.14	9,070.02	0.00	0.00	0.00
16,200.00	90.00	269.98	7,197.00	352.03	-9,170.14	9,170.02	0.00	0.00	0.00
16,300.00	90.00	269.98	7,197.00	352.00	-9,270.14	9,270.02	0.00	0.00	0.00
16,400.00	90.00	269.98	7,197.00	351.97	-9,370.14	9,370.02	0.00	0.00	0.00
16,500.00	90.00	269.98	7,197.00	351.94	-9,470.14	9,470.02	0.00	0.00	0.00
16,592.21	90.00	269.98	7,197.00	351.92	-9,562.35	9,562.23	0.00	0.00	0.00
TD at 16592.21 - PBHL_WILSON RANCH 5N-27HZ(1636 FNL 460 FWL)									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_WILSON RANCH-	0.00	0.00	7,197.00	351.92	-9,562.35	14,631,282.37	1,641,234.03	40.287104	-104.997069
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
712.00	712.00	9 5/8"	9.625	13.500	
7,552.82	7,197.00	7"(1746 FNL 1102 FEL)	7.000	8.750	

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 5N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4998 KB 17 @ 5015.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4998 KB 17 @ 5015.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 5N-27HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	PLAN A		
Design:	Permit Rev-1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
427.00	427.00	Base Fox Hills				
3,644.78	3,616.00	Parkman		0.00		
4,246.78	4,218.00	Sussex		0.00		
7,066.89	7,003.00	Sharon Springs		0.00		
7,130.09	7,048.00	Niobrara A		0.00		
7,277.25	7,132.00	Niobrara B		0.00		
7,445.62	7,187.00	Niobrara C		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,100.00	1,100.00	0.00	0.00	Start Build 2.00	
1,600.00	1,597.46	43.10	6.08	Start 1560.48 hold at 1600.00 MD	
3,160.48	3,134.24	311.41	43.92	Start Drop -2.00	
3,660.48	3,631.70	354.51	50.00	Start 2992.34 hold at 3660.48 MD	
6,652.82	6,624.04	354.51	50.00	Start DLS 10.00 TFO 269.98	
7,552.82	7,197.00	354.36	-522.96	Start 9039.39 hold at 7552.82 MD	
16,592.21	7,197.00	351.92	-9,562.35	TD at 16592.21	