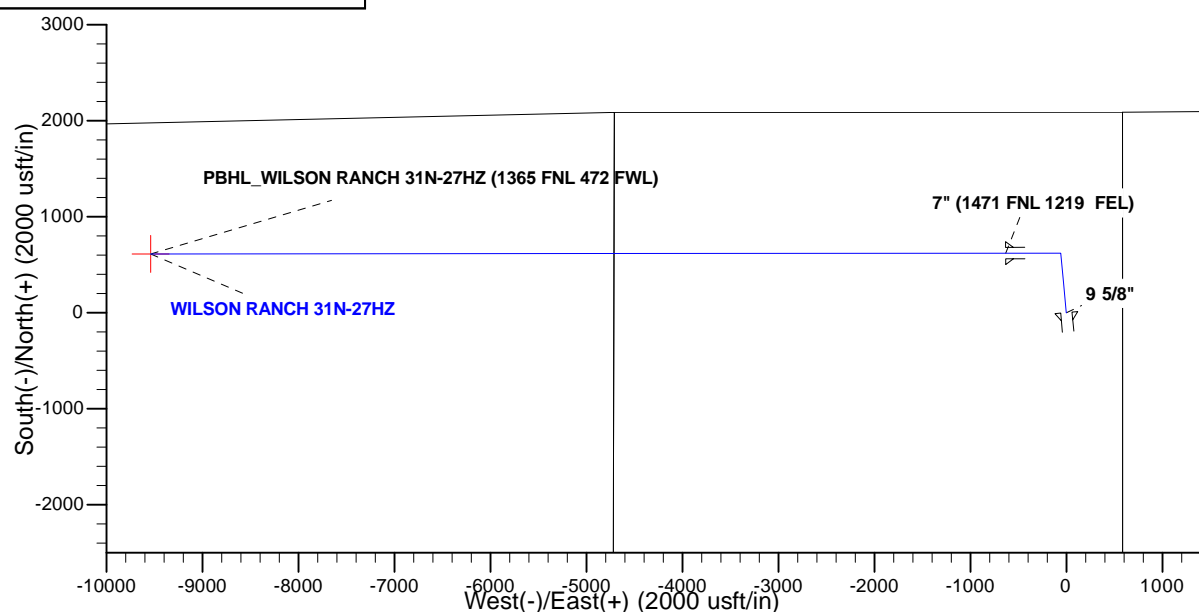
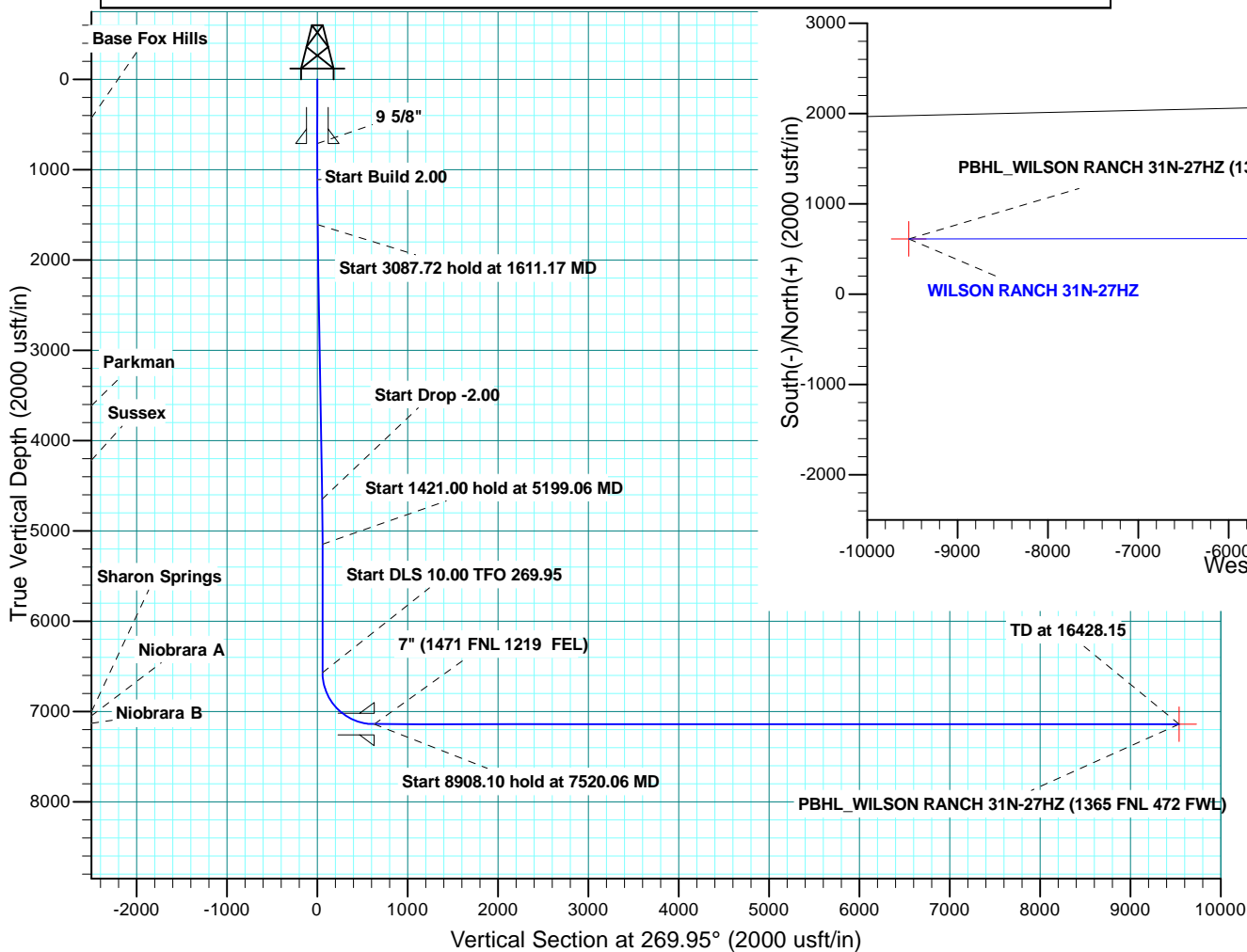


SHL: WILSON RANCH 31N-27HZ							
GL 4997 KB 17 @ 5014.00usft							
	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
	0.00	0.00	14630944.29	1650785.09	40.286170	-104.962821	
DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 7141.00	613.02	-9539.65	14631553.31	1641245.18	40.287848	-104.997029	Point
- plan hits target center							
SECTION DETAILS							
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1111.00	0.00	0.00	1111.00	0.00	0.00	0.00	0.00
1611.17	10.00	354.61	1608.63	43.36	-4.09	2.00	354.61
4698.89	10.00	354.61	4649.41	577.34	-54.51	0.00	0.00
5199.06	0.00	0.00	5147.04	620.70	-58.60	2.00	180.00
6620.06	0.00	0.00	6568.04	620.70	-58.60	0.00	0.00
7520.06	90.00	269.95	7141.00	620.24	-631.56	10.00	269.95
16428.15	90.00	269.95	7141.00	613.02	-9539.65	0.00	0.00

PBHL_WILSON RANCH 31N-27HZ (1365 FNL 472 FWL)



FORMATION TOP DETAILS			
TVDPath	MDPath	Formation	Inc
426.00	426.00	Base Fox Hills	0.00
3615.00	3648.51	Parkman	10.00
4217.00	4259.80	Sussex	10.00
7002.00	7112.41	Sharon Springs	49.24
7047.00	7187.20	Niobrara A	56.71
7131.00	7412.86	Niobrara B	79.28

CASING DETAILS			
TVD	MD	Name	Size
711.00	711.00	9 5/8"	9.625
7141.00	7520.06	7"	7.000



Scientific Drilling

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

WILSON RANCH 8 -26HZ

WILSON RANCH 31N-27HZ

PLAN A

Plan: Permit Rev-1

Standard Planning Report

30 December, 2014

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 31N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4997 KB 17 @ 5014.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4997 KB 17 @ 5014.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 31N-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 31N-27HZ,					
Well Position	+N/-S	-19.30 usft	Northing:	14,630,944.29 usft	Latitude:	40.286170
	+E/-W	22.87 usft	Easting:	1,650,785.08 usft	Longitude:	-104.962821
Position Uncertainty		3.28 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,997.00 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	269.95

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	
1,111.00	0.00	0.00	1,111.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,611.17	10.00	354.61	1,608.63	43.36	-4.09	2.00	2.00	0.00	354.61	
4,698.89	10.00	354.61	4,649.41	577.34	-54.51	0.00	0.00	0.00	0.00	
5,199.06	0.00	0.00	5,147.04	620.70	-58.60	2.00	-2.00	0.00	180.00	
6,620.06	0.00	0.00	6,568.04	620.70	-58.60	0.00	0.00	0.00	0.00	
7,520.06	90.00	269.95	7,141.00	620.24	-631.56	10.00	10.00	-10.01	269.95	
16,428.15	90.00	269.95	7,141.00	613.02	-9,539.65	0.00	0.00	0.00	0.00	PBHL_WILSON RAN

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 31N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4997 KB 17 @ 5014.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4997 KB 17 @ 5014.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 31N-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
426.00	0.00	0.00	426.00	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
711.00	0.00	0.00	711.00	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
1,111.00	0.00	0.00	1,111.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,200.00	1.78	354.61	1,199.99	1.38	-0.13	0.13	2.00	2.00	0.00
1,300.00	3.78	354.61	1,299.86	6.20	-0.59	0.58	2.00	2.00	0.00
1,400.00	5.78	354.61	1,399.51	14.50	-1.37	1.36	2.00	2.00	0.00
1,500.00	7.78	354.61	1,498.81	26.25	-2.48	2.46	2.00	2.00	0.00
1,600.00	9.78	354.61	1,597.63	41.45	-3.91	3.88	2.00	2.00	0.00
1,611.17	10.00	354.61	1,608.63	43.36	-4.09	4.06	2.00	2.00	0.00
Start 3087.72 hold at 1611.17 MD									
1,700.00	10.00	354.61	1,696.11	58.72	-5.54	5.49	0.00	0.00	0.00
1,800.00	10.00	354.61	1,794.59	76.02	-7.18	7.11	0.00	0.00	0.00
1,900.00	10.00	354.61	1,893.07	93.31	-8.81	8.73	0.00	0.00	0.00
2,000.00	10.00	354.61	1,991.55	110.60	-10.44	10.35	0.00	0.00	0.00
2,100.00	10.00	354.61	2,090.03	127.90	-12.07	11.96	0.00	0.00	0.00
2,200.00	10.00	354.61	2,188.51	145.19	-13.71	13.58	0.00	0.00	0.00
2,300.00	10.00	354.61	2,286.99	162.48	-15.34	15.20	0.00	0.00	0.00
2,400.00	10.00	354.61	2,385.47	179.78	-16.97	16.82	0.00	0.00	0.00
2,500.00	10.00	354.61	2,483.95	197.07	-18.61	18.43	0.00	0.00	0.00
2,600.00	10.00	354.61	2,582.43	214.36	-20.24	20.05	0.00	0.00	0.00
2,700.00	10.00	354.61	2,680.91	231.66	-21.87	21.67	0.00	0.00	0.00
2,800.00	10.00	354.61	2,779.39	248.95	-23.50	23.29	0.00	0.00	0.00
2,900.00	10.00	354.61	2,877.87	266.25	-25.14	24.90	0.00	0.00	0.00
3,000.00	10.00	354.61	2,976.35	283.54	-26.77	26.52	0.00	0.00	0.00
3,100.00	10.00	354.61	3,074.83	300.83	-28.40	28.14	0.00	0.00	0.00
3,200.00	10.00	354.61	3,173.31	318.13	-30.03	29.76	0.00	0.00	0.00
3,300.00	10.00	354.61	3,271.79	335.42	-31.67	31.37	0.00	0.00	0.00
3,400.00	10.00	354.61	3,370.27	352.71	-33.30	32.99	0.00	0.00	0.00
3,500.00	10.00	354.61	3,468.75	370.01	-34.93	34.61	0.00	0.00	0.00
3,600.00	10.00	354.61	3,567.23	387.30	-36.57	36.23	0.00	0.00	0.00
3,648.51	10.00	354.61	3,615.00	395.69	-37.36	37.01	0.00	0.00	0.00
Parkman									
3,700.00	10.00	354.61	3,665.71	404.60	-38.20	37.84	0.00	0.00	0.00
3,800.00	10.00	354.61	3,764.19	421.89	-39.83	39.46	0.00	0.00	0.00
3,900.00	10.00	354.61	3,862.67	439.18	-41.46	41.08	0.00	0.00	0.00
4,000.00	10.00	354.61	3,961.15	456.48	-43.10	42.70	0.00	0.00	0.00
4,100.00	10.00	354.61	4,059.63	473.77	-44.73	44.32	0.00	0.00	0.00
4,200.00	10.00	354.61	4,158.11	491.06	-46.36	45.93	0.00	0.00	0.00
4,259.80	10.00	354.61	4,217.00	501.41	-47.34	46.90	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 31N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4997 KB 17 @ 5014.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4997 KB 17 @ 5014.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 31N-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)
Sussex									
4,300.00	10.00	354.61	4,256.59	508.36	-47.99	47.55	0.00	0.00	0.00
4,400.00	10.00	354.61	4,355.07	525.65	-49.63	49.17	0.00	0.00	0.00
4,500.00	10.00	354.61	4,453.55	542.95	-51.26	50.79	0.00	0.00	0.00
4,600.00	10.00	354.61	4,552.03	560.24	-52.89	52.40	0.00	0.00	0.00
4,698.89	10.00	354.61	4,649.41	577.34	-54.51	54.00	0.00	0.00	0.00
Start Drop -2.00									
4,700.00	9.98	354.61	4,650.50	577.53	-54.52	54.02	2.00	-2.00	0.00
4,800.00	7.98	354.61	4,749.27	593.07	-55.99	55.47	2.00	-2.00	0.00
4,900.00	5.98	354.61	4,848.53	605.17	-57.13	56.61	2.00	-2.00	0.00
5,000.00	3.98	354.61	4,948.14	613.82	-57.95	57.41	2.00	-2.00	0.00
5,100.00	1.98	354.61	5,048.00	619.00	-58.44	57.90	2.00	-2.00	0.00
5,199.06	0.00	0.00	5,147.04	620.70	-58.60	58.06	2.00	-2.00	0.00
Start 1421.00 hold at 5199.06 MD									
5,200.00	0.00	0.00	5,147.98	620.70	-58.60	58.06	0.00	0.00	0.00
5,300.00	0.00	0.00	5,247.98	620.70	-58.60	58.06	0.00	0.00	0.00
5,400.00	0.00	0.00	5,347.98	620.70	-58.60	58.06	0.00	0.00	0.00
5,500.00	0.00	0.00	5,447.98	620.70	-58.60	58.06	0.00	0.00	0.00
5,600.00	0.00	0.00	5,547.98	620.70	-58.60	58.06	0.00	0.00	0.00
5,700.00	0.00	0.00	5,647.98	620.70	-58.60	58.06	0.00	0.00	0.00
5,800.00	0.00	0.00	5,747.98	620.70	-58.60	58.06	0.00	0.00	0.00
5,900.00	0.00	0.00	5,847.98	620.70	-58.60	58.06	0.00	0.00	0.00
6,000.00	0.00	0.00	5,947.98	620.70	-58.60	58.06	0.00	0.00	0.00
6,100.00	0.00	0.00	6,047.98	620.70	-58.60	58.06	0.00	0.00	0.00
6,200.00	0.00	0.00	6,147.98	620.70	-58.60	58.06	0.00	0.00	0.00
6,300.00	0.00	0.00	6,247.98	620.70	-58.60	58.06	0.00	0.00	0.00
6,400.00	0.00	0.00	6,347.98	620.70	-58.60	58.06	0.00	0.00	0.00
6,500.00	0.00	0.00	6,447.98	620.70	-58.60	58.06	0.00	0.00	0.00
6,600.00	0.00	0.00	6,547.98	620.70	-58.60	58.06	0.00	0.00	0.00
6,620.06	0.00	0.00	6,568.04	620.70	-58.60	58.06	0.00	0.00	0.00
Start DLS 10.00 TFO 269.95									
6,700.00	7.99	269.95	6,647.73	620.70	-64.17	63.63	10.00	10.00	0.00
6,800.00	17.99	269.95	6,745.04	620.68	-86.63	86.08	10.00	10.00	0.00
6,900.00	27.99	269.95	6,836.98	620.65	-125.64	125.10	10.00	10.00	0.00
7,000.00	37.99	269.95	6,920.74	620.60	-180.03	179.49	10.00	10.00	0.00
7,100.00	47.99	269.95	6,993.79	620.55	-248.13	247.59	10.00	10.00	0.00
7,112.41	49.24	269.95	7,002.00	620.54	-257.45	256.90	10.00	10.00	0.00
Sharon Springs									
7,187.20	56.71	269.95	7,047.00	620.49	-317.11	316.57	10.00	10.00	0.00
Niobrara A									
7,200.00	57.99	269.95	7,053.91	620.48	-327.89	327.35	10.00	10.00	0.00
7,300.00	67.99	269.95	7,099.26	620.41	-416.87	416.33	10.00	10.00	0.00
7,400.00	77.99	269.95	7,128.47	620.33	-512.38	511.84	10.00	10.00	0.00
7,412.86	79.28	269.95	7,131.00	620.32	-524.99	524.45	10.00	10.00	0.00
Niobrara B									
7,500.00	87.99	269.95	7,140.65	620.25	-611.51	610.96	10.00	10.00	0.00
7,520.06	90.00	269.95	7,141.00	620.24	-631.56	631.02	10.00	10.00	0.00
Start 8908.10 hold at 7520.06 MD - 7" (1471 FNL 1219 FEL)									
7,600.00	90.00	269.95	7,141.00	620.17	-711.50	710.96	0.00	0.00	0.00
7,700.00	90.00	269.95	7,141.00	620.09	-811.50	810.96	0.00	0.00	0.00
7,800.00	90.00	269.95	7,141.00	620.01	-911.50	910.96	0.00	0.00	0.00
7,900.00	90.00	269.95	7,141.00	619.93	-1,011.50	1,010.96	0.00	0.00	0.00
8,000.00	90.00	269.95	7,141.00	619.85	-1,111.50	1,110.96	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 31N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4997 KB 17 @ 5014.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4997 KB 17 @ 5014.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 31N-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)
8,100.00	90.00	269.95	7,141.00	619.77	-1,211.50	1,210.96	0.00	0.00	0.00
8,200.00	90.00	269.95	7,141.00	619.68	-1,311.50	1,310.96	0.00	0.00	0.00
8,300.00	90.00	269.95	7,141.00	619.60	-1,411.50	1,410.96	0.00	0.00	0.00
8,400.00	90.00	269.95	7,141.00	619.52	-1,511.50	1,510.96	0.00	0.00	0.00
8,500.00	90.00	269.95	7,141.00	619.44	-1,611.50	1,610.96	0.00	0.00	0.00
8,600.00	90.00	269.95	7,141.00	619.36	-1,711.50	1,710.96	0.00	0.00	0.00
8,700.00	90.00	269.95	7,141.00	619.28	-1,811.50	1,810.96	0.00	0.00	0.00
8,800.00	90.00	269.95	7,141.00	619.20	-1,911.50	1,910.96	0.00	0.00	0.00
8,900.00	90.00	269.95	7,141.00	619.12	-2,011.50	2,010.96	0.00	0.00	0.00
9,000.00	90.00	269.95	7,141.00	619.04	-2,111.50	2,110.96	0.00	0.00	0.00
9,100.00	90.00	269.95	7,141.00	618.96	-2,211.50	2,210.96	0.00	0.00	0.00
9,200.00	90.00	269.95	7,141.00	618.87	-2,311.50	2,310.96	0.00	0.00	0.00
9,300.00	90.00	269.95	7,141.00	618.79	-2,411.50	2,410.96	0.00	0.00	0.00
9,400.00	90.00	269.95	7,141.00	618.71	-2,511.50	2,510.96	0.00	0.00	0.00
9,500.00	90.00	269.95	7,141.00	618.63	-2,611.50	2,610.96	0.00	0.00	0.00
9,600.00	90.00	269.95	7,141.00	618.55	-2,711.50	2,710.96	0.00	0.00	0.00
9,700.00	90.00	269.95	7,141.00	618.47	-2,811.50	2,810.96	0.00	0.00	0.00
9,800.00	90.00	269.95	7,141.00	618.39	-2,911.50	2,910.96	0.00	0.00	0.00
9,900.00	90.00	269.95	7,141.00	618.31	-3,011.50	3,010.96	0.00	0.00	0.00
10,000.00	90.00	269.95	7,141.00	618.23	-3,111.50	3,110.96	0.00	0.00	0.00
10,100.00	90.00	269.95	7,141.00	618.14	-3,211.50	3,210.96	0.00	0.00	0.00
10,200.00	90.00	269.95	7,141.00	618.06	-3,311.50	3,310.96	0.00	0.00	0.00
10,300.00	90.00	269.95	7,141.00	617.98	-3,411.50	3,410.96	0.00	0.00	0.00
10,400.00	90.00	269.95	7,141.00	617.90	-3,511.50	3,510.96	0.00	0.00	0.00
10,500.00	90.00	269.95	7,141.00	617.82	-3,611.50	3,610.96	0.00	0.00	0.00
10,600.00	90.00	269.95	7,141.00	617.74	-3,711.50	3,710.96	0.00	0.00	0.00
10,700.00	90.00	269.95	7,141.00	617.66	-3,811.50	3,810.96	0.00	0.00	0.00
10,800.00	90.00	269.95	7,141.00	617.58	-3,911.50	3,910.96	0.00	0.00	0.00
10,900.00	90.00	269.95	7,141.00	617.50	-4,011.50	4,010.96	0.00	0.00	0.00
11,000.00	90.00	269.95	7,141.00	617.42	-4,111.50	4,110.96	0.00	0.00	0.00
11,100.00	90.00	269.95	7,141.00	617.33	-4,211.50	4,210.96	0.00	0.00	0.00
11,200.00	90.00	269.95	7,141.00	617.25	-4,311.50	4,310.96	0.00	0.00	0.00
11,300.00	90.00	269.95	7,141.00	617.17	-4,411.50	4,410.96	0.00	0.00	0.00
11,400.00	90.00	269.95	7,141.00	617.09	-4,511.50	4,510.96	0.00	0.00	0.00
11,500.00	90.00	269.95	7,141.00	617.01	-4,611.50	4,610.96	0.00	0.00	0.00
11,600.00	90.00	269.95	7,141.00	616.93	-4,711.50	4,710.96	0.00	0.00	0.00
11,700.00	90.00	269.95	7,141.00	616.85	-4,811.50	4,810.96	0.00	0.00	0.00
11,800.00	90.00	269.95	7,141.00	616.77	-4,911.50	4,910.96	0.00	0.00	0.00
11,900.00	90.00	269.95	7,141.00	616.69	-5,011.50	5,010.96	0.00	0.00	0.00
12,000.00	90.00	269.95	7,141.00	616.60	-5,111.50	5,110.96	0.00	0.00	0.00
12,100.00	90.00	269.95	7,141.00	616.52	-5,211.50	5,210.96	0.00	0.00	0.00
12,200.00	90.00	269.95	7,141.00	616.44	-5,311.50	5,310.96	0.00	0.00	0.00
12,300.00	90.00	269.95	7,141.00	616.36	-5,411.50	5,410.96	0.00	0.00	0.00
12,400.00	90.00	269.95	7,141.00	616.28	-5,511.50	5,510.96	0.00	0.00	0.00
12,500.00	90.00	269.95	7,141.00	616.20	-5,611.50	5,610.96	0.00	0.00	0.00
12,600.00	90.00	269.95	7,141.00	616.12	-5,711.50	5,710.96	0.00	0.00	0.00
12,700.00	90.00	269.95	7,141.00	616.04	-5,811.50	5,810.96	0.00	0.00	0.00
12,800.00	90.00	269.95	7,141.00	615.96	-5,911.50	5,910.96	0.00	0.00	0.00
12,900.00	90.00	269.95	7,141.00	615.88	-6,011.50	6,010.96	0.00	0.00	0.00
13,000.00	90.00	269.95	7,141.00	615.79	-6,111.50	6,110.96	0.00	0.00	0.00
13,100.00	90.00	269.95	7,141.00	615.71	-6,211.50	6,210.96	0.00	0.00	0.00
13,200.00	90.00	269.95	7,141.00	615.63	-6,311.50	6,310.96	0.00	0.00	0.00
13,300.00	90.00	269.95	7,141.00	615.55	-6,411.50	6,410.96	0.00	0.00	0.00
13,400.00	90.00	269.95	7,141.00	615.47	-6,511.50	6,510.96	0.00	0.00	0.00

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 31N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4997 KB 17 @ 5014.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4997 KB 17 @ 5014.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 31N-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)	
13,500.00	90.00	269.95	7,141.00	615.39	-6,611.50	6,610.96	0.00	0.00	0.00	
13,600.00	90.00	269.95	7,141.00	615.31	-6,711.50	6,710.96	0.00	0.00	0.00	
13,700.00	90.00	269.95	7,141.00	615.23	-6,811.50	6,810.96	0.00	0.00	0.00	
13,800.00	90.00	269.95	7,141.00	615.15	-6,911.50	6,910.96	0.00	0.00	0.00	
13,900.00	90.00	269.95	7,141.00	615.06	-7,011.50	7,010.96	0.00	0.00	0.00	
14,000.00	90.00	269.95	7,141.00	614.98	-7,111.50	7,110.96	0.00	0.00	0.00	
14,100.00	90.00	269.95	7,141.00	614.90	-7,211.50	7,210.96	0.00	0.00	0.00	
14,200.00	90.00	269.95	7,141.00	614.82	-7,311.50	7,310.96	0.00	0.00	0.00	
14,300.00	90.00	269.95	7,141.00	614.74	-7,411.50	7,410.96	0.00	0.00	0.00	
14,400.00	90.00	269.95	7,141.00	614.66	-7,511.50	7,510.96	0.00	0.00	0.00	
14,500.00	90.00	269.95	7,141.00	614.58	-7,611.50	7,610.96	0.00	0.00	0.00	
14,600.00	90.00	269.95	7,141.00	614.50	-7,711.50	7,710.96	0.00	0.00	0.00	
14,700.00	90.00	269.95	7,141.00	614.42	-7,811.50	7,810.96	0.00	0.00	0.00	
14,800.00	90.00	269.95	7,141.00	614.34	-7,911.50	7,910.96	0.00	0.00	0.00	
14,900.00	90.00	269.95	7,141.00	614.25	-8,011.50	8,010.96	0.00	0.00	0.00	
15,000.00	90.00	269.95	7,141.00	614.17	-8,111.50	8,110.96	0.00	0.00	0.00	
15,100.00	90.00	269.95	7,141.00	614.09	-8,211.50	8,210.96	0.00	0.00	0.00	
15,200.00	90.00	269.95	7,141.00	614.01	-8,311.50	8,310.96	0.00	0.00	0.00	
15,300.00	90.00	269.95	7,141.00	613.93	-8,411.50	8,410.96	0.00	0.00	0.00	
15,400.00	90.00	269.95	7,141.00	613.85	-8,511.50	8,510.96	0.00	0.00	0.00	
15,500.00	90.00	269.95	7,141.00	613.77	-8,611.50	8,610.96	0.00	0.00	0.00	
15,600.00	90.00	269.95	7,141.00	613.69	-8,711.50	8,710.96	0.00	0.00	0.00	
15,700.00	90.00	269.95	7,141.00	613.61	-8,811.50	8,810.96	0.00	0.00	0.00	
15,800.00	90.00	269.95	7,141.00	613.52	-8,911.50	8,910.96	0.00	0.00	0.00	
15,900.00	90.00	269.95	7,141.00	613.44	-9,011.50	9,010.96	0.00	0.00	0.00	
16,000.00	90.00	269.95	7,141.00	613.36	-9,111.50	9,110.96	0.00	0.00	0.00	
16,100.00	90.00	269.95	7,141.00	613.28	-9,211.50	9,210.96	0.00	0.00	0.00	
16,200.00	90.00	269.95	7,141.00	613.20	-9,311.50	9,310.96	0.00	0.00	0.00	
16,300.00	90.00	269.95	7,141.00	613.12	-9,411.50	9,410.96	0.00	0.00	0.00	
16,400.00	90.00	269.95	7,141.00	613.04	-9,511.50	9,510.96	0.00	0.00	0.00	
16,428.15	90.00	269.95	7,141.00	613.02	-9,539.65	9,539.11	0.00	0.00	0.00	
TD at 16428.15 - PBHL_WILSON RANCH 31N-27HZ (1365 FNL 472 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	7,141.00	613.02	-9,539.65	14,631,553.30	1,641,245.18	40.287848	-104.997029
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
711.00	711.00	9 5/8"	9.625	13.500	
7,520.06	7,141.00	7" (1471 FNL 1219 FEL)	7.000	8.750	

Database:	Denver Sales	Local Co-ordinate Reference:	Well WILSON RANCH 31N-27HZ
Company:	US ROCKIES WATTENBERG PLANNING	TVD Reference:	GL 4997 KB 17 @ 5014.00usft
Project:	WELD-NAD83-UTMFT13N	MD Reference:	GL 4997 KB 17 @ 5014.00usft
Site:	WILSON RANCH 8 -26HZ	North Reference:	True
Well:	WILSON RANCH 31N-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 (°)	
426.00	427.00	Base Fox Hills				
3,648.51	3,616.00	Parkman				
4,259.80	4,218.00	Sussex				
7,112.41	7,003.00	Sharon Springs				
7,187.20	7,048.00	Niobrara A				
7,412.86	7,132.00	Niobrara B				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,111.00	1,111.00	0.00	0.00	Start Build 2.00	
1,611.17	1,608.63	43.36	-4.09	Start 3087.72 hold at 1611.17 MD	
4,698.89	4,649.41	577.34	-54.51	Start Drop -2.00	
5,199.06	5,147.04	620.70	-58.60	Start 1421.00 hold at 5199.06 MD	
6,620.06	6,568.04	620.70	-58.60	Start DLS 10.00 TFO 269.95	
7,520.06	7,141.00	620.24	-631.56	Start 8908.10 hold at 7520.06 MD	
16,428.15	7,141.00	613.02	-9,539.65	TD at 16428.15	