

# US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

Wilson Ranch 9-26HZ Pad

Wilson Ranch 32N-S27HZ

Plan C

Plan: Permit Rev-3

## Sperry Drilling Services Proposal Report

09 December, 2014

Well Coordinates: 14,629,653.15 N, 1,651,167.15 E (40° 16' 57.45" N, 104° 57' 41.23" W)

Ground Level: 5,040.00 usft

Local Coordinate Origin:

Centered on Well Wilson Ranch 32N-S27HZ

Viewing Datum:

RKB = 17' @ 5057.00usft (D Rig)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 70

**HALLIBURTON**

Project: WELD-NAD83-UTMFT13N  
Site: Wilson Ranch 9-26HZ Pad  
Well: Wilson Ranch 32N-S27HZ  
Wellbore: Plan C  
Design: Permit Rev-3

# US ROCKIES WATTENBERG PLANNING

**HALLIBURTON**  
Sperry Drilling

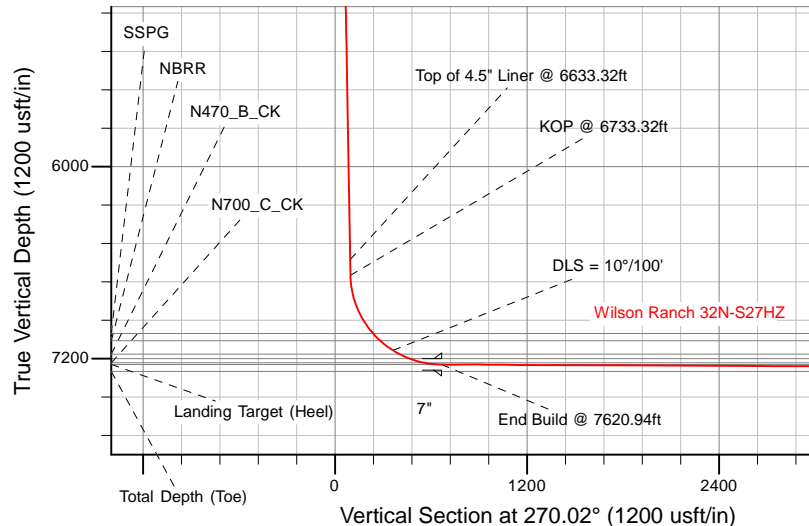
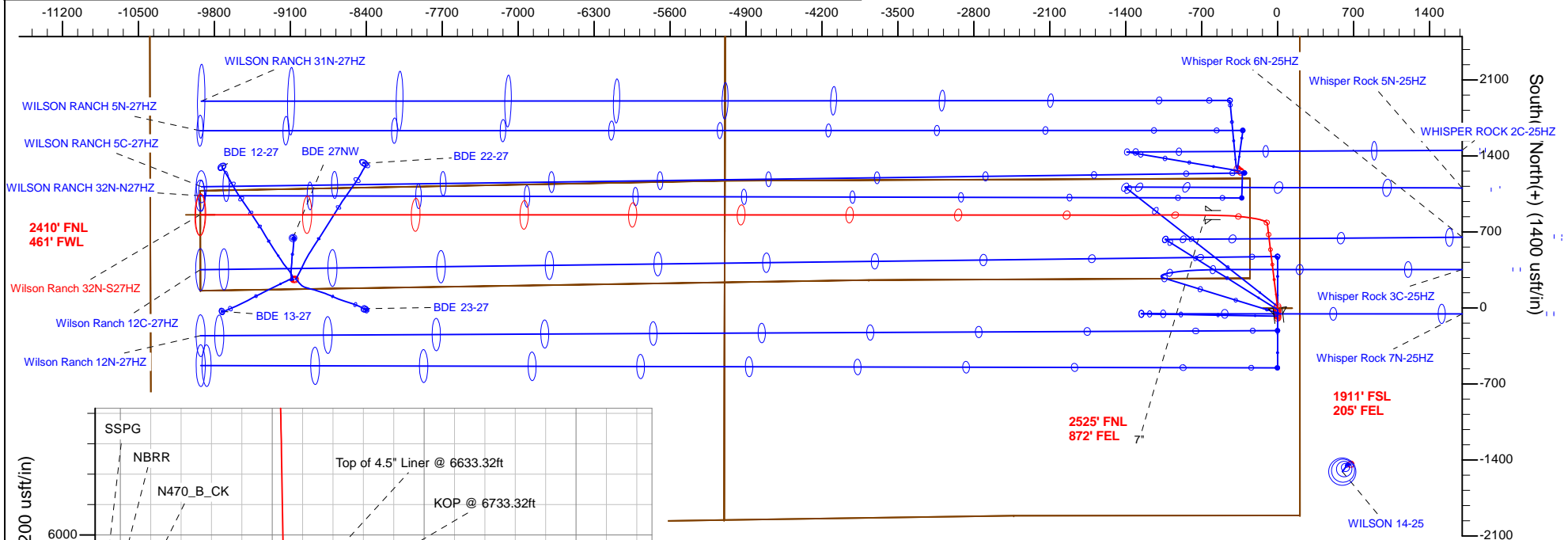
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	
3	1300.00	8.00	353.00	1298.70	27.67	-3.40	2.00	353.00	3.41	
4	6733.32	8.00	353.00	6679.14	778.21	-95.55	0.00	0.00	95.82	
5	7620.94	89.73	270.02	7237.00	855.89	-665.76	10.00	-83.08	666.06	
6	16884.22	89.73	270.02	7280.00	859.60	-9928.95	0.00	0.00	9929.25	Wilson Ranch 32N-S27HZ_bhl

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
Wilson Ranch 32N-S27HZ_LD	0.00	0.00	0.00	40.282624	-104.961453	Polygon
Wilson Ranch 32N-S27HZ_SHL	0.00	0.00	0.00	40.282624	-104.961453	
4N-R68W-Sec. 26_Section Lines	88.00	2719.18	-554.38	40.290091	-104.963441	Polygon
4N-R68W-Sec. 27_Section Lines	88.00	2719.18	-554.38	40.290091	-104.963441	Polygon
Wilson Ranch 32N-S27HZ_bhl	7280.00	859.60	-9928.95	40.284979	-104.997056	

West(-)/East(+) (1400 usft/in)



TVD MD

6580.12 6633.32 Top of 4.5\" Liner @ 6633.32ft  
6679.14 6733.32 KOP @ 6733.32ft

WELL DETAILS: Wilson Ranch 32N-S27HZ

Ground Level: 5040.00

RKB = 17' @ 5057.00usft (D Rig)

Plan: Permit Rev-3 (Wilson Ranch 32N-S27HZ/Plan C)

Created By: Clint Eshelman Date: 12/09/2014  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

## Plan Report for Wilson Ranch 32N-S27HZ - Permit Rev-3

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)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Wilson Ranch 32N-S27HZ_LD - Wilson Ranch 32N-S27HZ_SHL</b>										
88.00	0.00	0.00	88.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>4N-R68W-Sec. 26_Section Lines - 4N-R68W-Sec. 27_Section Lines</b>										
100.00	0.00	0.00	100.00	0.00	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	0.00
300.00	0.00	0.00	300.00	0.00	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	0.00
469.00	0.00	0.00	469.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Base Fox Hills</b>										
500.00	0.00	0.00	500.00	0.00	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	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
754.00	0.00	0.00	754.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Surface Csg Setting Depth - 9 5/8"</b>										
800.00	0.00	0.00	800.00	0.00	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	0.00
<b>Begin Nudge @ 900.00ft</b>										
1,000.00	2.00	353.00	999.98	1.73	-0.21	0.21	2.00	2.00	0.00	353.00
1,100.00	4.00	353.00	1,099.84	6.93	-0.85	0.85	2.00	2.00	0.00	0.00
1,200.00	6.00	353.00	1,199.45	15.58	-1.91	1.92	2.00	2.00	0.00	0.00
1,300.00	8.00	353.00	1,298.70	27.67	-3.40	3.41	2.00	2.00	0.00	0.00
<b>End Nudge @ 1300.00ft</b>										
1,400.00	8.00	353.00	1,397.73	41.49	-5.09	5.11	0.00	0.00	0.00	0.00
1,500.00	8.00	353.00	1,496.76	55.30	-6.79	6.81	0.00	0.00	0.00	0.00
1,600.00	8.00	353.00	1,595.78	69.11	-8.49	8.51	0.00	0.00	0.00	0.00
1,700.00	8.00	353.00	1,694.81	82.93	-10.18	10.21	0.00	0.00	0.00	0.00
1,800.00	8.00	353.00	1,793.84	96.74	-11.88	11.91	0.00	0.00	0.00	0.00
1,900.00	8.00	353.00	1,892.86	110.55	-13.57	13.61	0.00	0.00	0.00	0.00
2,000.00	8.00	353.00	1,991.89	124.37	-15.27	15.31	0.00	0.00	0.00	0.00
2,100.00	8.00	353.00	2,090.92	138.18	-16.97	17.01	0.00	0.00	0.00	0.00
2,200.00	8.00	353.00	2,189.94	151.99	-18.66	18.72	0.00	0.00	0.00	0.00
2,300.00	8.00	353.00	2,288.97	165.81	-20.36	20.42	0.00	0.00	0.00	0.00
2,400.00	8.00	353.00	2,388.00	179.62	-22.05	22.12	0.00	0.00	0.00	0.00
2,500.00	8.00	353.00	2,487.02	193.43	-23.75	23.82	0.00	0.00	0.00	0.00
2,600.00	8.00	353.00	2,586.05	207.25	-25.45	25.52	0.00	0.00	0.00	0.00
2,700.00	8.00	353.00	2,685.08	221.06	-27.14	27.22	0.00	0.00	0.00	0.00
2,800.00	8.00	353.00	2,784.10	234.88	-28.84	28.92	0.00	0.00	0.00	0.00
2,900.00	8.00	353.00	2,883.13	248.69	-30.54	30.62	0.00	0.00	0.00	0.00
3,000.00	8.00	353.00	2,982.16	262.50	-32.23	32.32	0.00	0.00	0.00	0.00
3,100.00	8.00	353.00	3,081.18	276.32	-33.93	34.02	0.00	0.00	0.00	0.00
3,200.00	8.00	353.00	3,180.21	290.13	-35.62	35.72	0.00	0.00	0.00	0.00
3,300.00	8.00	353.00	3,279.24	303.94	-37.32	37.43	0.00	0.00	0.00	0.00
3,400.00	8.00	353.00	3,378.26	317.76	-39.02	39.13	0.00	0.00	0.00	0.00
3,500.00	8.00	353.00	3,477.29	331.57	-40.71	40.83	0.00	0.00	0.00	0.00
3,600.00	8.00	353.00	3,576.32	345.38	-42.41	42.53	0.00	0.00	0.00	0.00
3,680.46	8.00	353.00	3,656.00	356.50	-43.77	43.90	0.00	0.00	0.00	0.00
<b>Parkman</b>										
3,700.00	8.00	353.00	3,675.34	359.20	-44.10	44.23	0.00	0.00	0.00	0.00
3,800.00	8.00	353.00	3,774.37	373.01	-45.80	45.93	0.00	0.00	0.00	0.00
3,900.00	8.00	353.00	3,873.40	386.83	-47.50	47.63	0.00	0.00	0.00	0.00
4,000.00	8.00	353.00	3,972.43	400.64	-49.19	49.33	0.00	0.00	0.00	0.00
4,100.00	8.00	353.00	4,071.45	414.45	-50.89	51.03	0.00	0.00	0.00	0.00
4,200.00	8.00	353.00	4,170.48	428.27	-52.58	52.73	0.00	0.00	0.00	0.00
4,288.38	8.00	353.00	4,258.00	440.47	-54.08	54.24	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,300.00	8.00	353.00	4,269.51	442.08	-54.28	54.43	0.00	0.00	0.00	0.00
4,400.00	8.00	353.00	4,368.53	455.89	-55.98	56.14	0.00	0.00	0.00	0.00

## Plan Report for Wilson Ranch 32N-S27HZ - Permit Rev-3

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)	Toolface Azimuth (°)
4,500.00	8.00	353.00	4,467.56	469.71	-57.67	57.84	0.00	0.00	0.00	0.00
4,600.00	8.00	353.00	4,566.59	483.52	-59.37	59.54	0.00	0.00	0.00	0.00
4,700.00	8.00	353.00	4,665.61	497.33	-61.06	61.24	0.00	0.00	0.00	0.00
4,800.00	8.00	353.00	4,764.64	511.15	-62.76	62.94	0.00	0.00	0.00	0.00
4,900.00	8.00	353.00	4,863.67	524.96	-64.46	64.64	0.00	0.00	0.00	0.00
5,000.00	8.00	353.00	4,962.69	538.77	-66.15	66.34	0.00	0.00	0.00	0.00
5,100.00	8.00	353.00	5,061.72	552.59	-67.85	68.04	0.00	0.00	0.00	0.00
5,200.00	8.00	353.00	5,160.75	566.40	-69.55	69.74	0.00	0.00	0.00	0.00
5,300.00	8.00	353.00	5,259.77	580.22	-71.24	71.44	0.00	0.00	0.00	0.00
5,400.00	8.00	353.00	5,358.80	594.03	-72.94	73.14	0.00	0.00	0.00	0.00
5,500.00	8.00	353.00	5,457.83	607.84	-74.63	74.85	0.00	0.00	0.00	0.00
5,600.00	8.00	353.00	5,556.85	621.66	-76.33	76.55	0.00	0.00	0.00	0.00
5,700.00	8.00	353.00	5,655.88	635.47	-78.03	78.25	0.00	0.00	0.00	0.00
5,800.00	8.00	353.00	5,754.91	649.28	-79.72	79.95	0.00	0.00	0.00	0.00
5,900.00	8.00	353.00	5,853.93	663.10	-81.42	81.65	0.00	0.00	0.00	0.00
6,000.00	8.00	353.00	5,952.96	676.91	-83.11	83.35	0.00	0.00	0.00	0.00
6,100.00	8.00	353.00	6,051.99	690.72	-84.81	85.05	0.00	0.00	0.00	0.00
6,200.00	8.00	353.00	6,151.02	704.54	-86.51	86.75	0.00	0.00	0.00	0.00
6,300.00	8.00	353.00	6,250.04	718.35	-88.20	88.45	0.00	0.00	0.00	0.00
6,400.00	8.00	353.00	6,349.07	732.16	-89.90	90.15	0.00	0.00	0.00	0.00
6,500.00	8.00	353.00	6,448.10	745.98	-91.59	91.85	0.00	0.00	0.00	0.00
6,600.00	8.00	353.00	6,547.12	759.79	-93.29	93.56	0.00	0.00	0.00	0.00
6,633.32	8.00	353.00	6,580.12	764.39	-93.86	94.12	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6633.32ft</b>										
6,700.00	8.00	353.00	6,646.15	773.61	-94.99	95.26	0.00	0.00	0.00	0.00
6,733.32	8.00	353.00	6,679.14	778.21	-95.55	95.82	0.00	0.00	0.00	0.00
<b>KOP @ 6733.32ft</b>										
6,800.00	11.00	315.84	6,744.96	787.39	-100.56	100.83	10.00	4.50	-55.73	-83.08
6,900.00	19.29	293.47	6,841.48	800.85	-122.41	122.69	10.00	8.29	-22.37	-46.38
7,000.00	28.67	284.77	6,932.78	813.57	-160.85	161.14	10.00	9.38	-8.71	-24.72
7,100.00	38.34	280.14	7,016.07	825.18	-214.72	215.01	10.00	9.68	-4.62	-16.74
7,135.19	41.78	278.97	7,043.00	828.93	-237.05	237.34	10.00	9.77	-3.34	-12.87
<b>SSPG</b>										
7,198.74	48.01	277.20	7,088.00	835.20	-281.45	281.74	10.00	9.81	-2.78	-11.97
<b>NBRR</b>										
7,200.00	48.14	277.17	7,088.84	835.31	-282.37	282.67	10.00	9.83	-2.50	-10.71
7,300.00	57.99	274.99	7,148.87	843.67	-361.76	362.05	10.00	9.85	-2.18	-10.69
<b>DLS = 10°/100'</b>										
7,346.69	62.60	274.13	7,172.00	846.88	-402.17	402.47	10.00	9.87	-1.83	-9.38
<b>N470_B_CK</b>										
7,400.00	67.86	273.24	7,194.33	849.99	-450.46	450.76	10.00	9.88	-1.68	-8.95
7,500.00	77.76	271.72	7,223.85	854.08	-545.78	546.08	10.00	9.89	-1.52	-8.58
7,515.88	79.33	271.49	7,227.00	854.52	-561.34	561.64	10.00	9.90	-1.44	-8.13
<b>N700_C_CK</b>										
7,600.00	87.66	270.31	7,236.52	855.82	-644.83	645.13	10.00	9.90	-1.40	-8.08
7,620.94	89.73	270.02	7,237.00	855.89	-665.77	666.06	10.00	9.90	-1.38	-7.95
<b>End Build @ 7620.94ft - Landing Target (Heel) - 7"</b>										
7,700.00	89.73	270.02	7,237.36	855.92	-744.82	745.12	0.00	0.00	0.00	0.00
7,800.00	89.73	270.02	7,237.83	855.96	-844.82	845.12	0.00	0.00	0.00	0.00
7,900.00	89.73	270.02	7,238.29	856.00	-944.82	945.12	0.00	0.00	0.00	0.00
8,000.00	89.73	270.02	7,238.76	856.04	-1,044.82	1,045.12	0.00	0.00	0.00	0.00
8,100.00	89.73	270.02	7,239.22	856.08	-1,144.82	1,145.12	0.00	0.00	0.00	0.00
8,200.00	89.73	270.02	7,239.68	856.12	-1,244.82	1,245.12	0.00	0.00	0.00	0.00
8,300.00	89.73	270.02	7,240.15	856.16	-1,344.82	1,345.12	0.00	0.00	0.00	0.00
8,400.00	89.73	270.02	7,240.61	856.20	-1,444.82	1,445.12	0.00	0.00	0.00	0.00
8,500.00	89.73	270.02	7,241.08	856.24	-1,544.82	1,545.11	0.00	0.00	0.00	0.00
8,600.00	89.73	270.02	7,241.54	856.28	-1,644.81	1,645.11	0.00	0.00	0.00	0.00
8,700.00	89.73	270.02	7,242.01	856.32	-1,744.81	1,745.11	0.00	0.00	0.00	0.00

## Plan Report for Wilson Ranch 32N-S27HZ - Permit Rev-3

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)	Toolface Azimuth (°)
8,800.00	89.73	270.02	7,242.47	856.36	-1,844.81	1,845.11	0.00	0.00	0.00	0.00
8,900.00	89.73	270.02	7,242.93	856.40	-1,944.81	1,945.11	0.00	0.00	0.00	0.00
9,000.00	89.73	270.02	7,243.40	856.44	-2,044.81	2,045.11	0.00	0.00	0.00	0.00
9,100.00	89.73	270.02	7,243.86	856.48	-2,144.81	2,145.11	0.00	0.00	0.00	0.00
9,200.00	89.73	270.02	7,244.33	856.52	-2,244.81	2,245.11	0.00	0.00	0.00	0.00
9,300.00	89.73	270.02	7,244.79	856.56	-2,344.81	2,345.11	0.00	0.00	0.00	0.00
9,400.00	89.73	270.02	7,245.26	856.60	-2,444.81	2,445.11	0.00	0.00	0.00	0.00
9,500.00	89.73	270.02	7,245.72	856.64	-2,544.81	2,545.10	0.00	0.00	0.00	0.00
9,600.00	89.73	270.02	7,246.18	856.68	-2,644.80	2,645.10	0.00	0.00	0.00	0.00
9,700.00	89.73	270.02	7,246.65	856.72	-2,744.80	2,745.10	0.00	0.00	0.00	0.00
9,800.00	89.73	270.02	7,247.11	856.76	-2,844.80	2,845.10	0.00	0.00	0.00	0.00
9,900.00	89.73	270.02	7,247.58	856.80	-2,944.80	2,945.10	0.00	0.00	0.00	0.00
10,000.00	89.73	270.02	7,248.04	856.84	-3,044.80	3,045.10	0.00	0.00	0.00	0.00
10,100.00	89.73	270.02	7,248.51	856.88	-3,144.80	3,145.10	0.00	0.00	0.00	0.00
10,200.00	89.73	270.02	7,248.97	856.92	-3,244.80	3,245.10	0.00	0.00	0.00	0.00
10,300.00	89.73	270.02	7,249.43	856.96	-3,344.80	3,345.10	0.00	0.00	0.00	0.00
10,400.00	89.73	270.02	7,249.90	857.00	-3,444.80	3,445.09	0.00	0.00	0.00	0.00
10,500.00	89.73	270.02	7,250.36	857.04	-3,544.79	3,545.09	0.00	0.00	0.00	0.00
10,600.00	89.73	270.02	7,250.83	857.08	-3,644.79	3,645.09	0.00	0.00	0.00	0.00
10,700.00	89.73	270.02	7,251.29	857.12	-3,744.79	3,745.09	0.00	0.00	0.00	0.00
10,800.00	89.73	270.02	7,251.75	857.16	-3,844.79	3,845.09	0.00	0.00	0.00	0.00
10,900.00	89.73	270.02	7,252.22	857.20	-3,944.79	3,945.09	0.00	0.00	0.00	0.00
11,000.00	89.73	270.02	7,252.68	857.24	-4,044.79	4,045.09	0.00	0.00	0.00	0.00
11,100.00	89.73	270.02	7,253.15	857.28	-4,144.79	4,145.09	0.00	0.00	0.00	0.00
11,200.00	89.73	270.02	7,253.61	857.32	-4,244.79	4,245.09	0.00	0.00	0.00	0.00
11,300.00	89.73	270.02	7,254.08	857.36	-4,344.79	4,345.08	0.00	0.00	0.00	0.00
11,400.00	89.73	270.02	7,254.54	857.40	-4,444.78	4,445.08	0.00	0.00	0.00	0.00
11,500.00	89.73	270.02	7,255.00	857.44	-4,544.78	4,545.08	0.00	0.00	0.00	0.00
11,600.00	89.73	270.02	7,255.47	857.48	-4,644.78	4,645.08	0.00	0.00	0.00	0.00
11,700.00	89.73	270.02	7,255.93	857.52	-4,744.78	4,745.08	0.00	0.00	0.00	0.00
11,800.00	89.73	270.02	7,256.40	857.56	-4,844.78	4,845.08	0.00	0.00	0.00	0.00
11,900.00	89.73	270.02	7,256.86	857.60	-4,944.78	4,945.08	0.00	0.00	0.00	0.00
12,000.00	89.73	270.02	7,257.33	857.64	-5,044.78	5,045.08	0.00	0.00	0.00	0.00
12,100.00	89.73	270.02	7,257.79	857.68	-5,144.78	5,145.08	0.00	0.00	0.00	0.00
12,200.00	89.73	270.02	7,258.25	857.72	-5,244.78	5,245.07	0.00	0.00	0.00	0.00
12,300.00	89.73	270.02	7,258.72	857.76	-5,344.77	5,345.07	0.00	0.00	0.00	0.00
12,400.00	89.73	270.02	7,259.18	857.80	-5,444.77	5,445.07	0.00	0.00	0.00	0.00
12,500.00	89.73	270.02	7,259.65	857.84	-5,544.77	5,545.07	0.00	0.00	0.00	0.00
12,600.00	89.73	270.02	7,260.11	857.88	-5,644.77	5,645.07	0.00	0.00	0.00	0.00
12,700.00	89.73	270.02	7,260.58	857.92	-5,744.77	5,745.07	0.00	0.00	0.00	0.00
12,800.00	89.73	270.02	7,261.04	857.96	-5,844.77	5,845.07	0.00	0.00	0.00	0.00
12,900.00	89.73	270.02	7,261.50	858.00	-5,944.77	5,945.07	0.00	0.00	0.00	0.00
13,000.00	89.73	270.02	7,261.97	858.04	-6,044.77	6,045.07	0.00	0.00	0.00	0.00
13,100.00	89.73	270.02	7,262.43	858.08	-6,144.77	6,145.07	0.00	0.00	0.00	0.00
13,200.00	89.73	270.02	7,262.90	858.12	-6,244.77	6,245.06	0.00	0.00	0.00	0.00
13,300.00	89.73	270.02	7,263.36	858.16	-6,344.76	6,345.06	0.00	0.00	0.00	0.00
13,400.00	89.73	270.02	7,263.82	858.20	-6,444.76	6,445.06	0.00	0.00	0.00	0.00
13,500.00	89.73	270.02	7,264.29	858.24	-6,544.76	6,545.06	0.00	0.00	0.00	0.00
13,600.00	89.73	270.02	7,264.75	858.28	-6,644.76	6,645.06	0.00	0.00	0.00	0.00
13,700.00	89.73	270.02	7,265.22	858.32	-6,744.76	6,745.06	0.00	0.00	0.00	0.00
13,800.00	89.73	270.02	7,265.68	858.36	-6,844.76	6,845.06	0.00	0.00	0.00	0.00
13,900.00	89.73	270.02	7,266.15	858.40	-6,944.76	6,945.06	0.00	0.00	0.00	0.00
14,000.00	89.73	270.02	7,266.61	858.44	-7,044.76	7,045.06	0.00	0.00	0.00	0.00
14,100.00	89.73	270.02	7,267.07	858.48	-7,144.76	7,145.05	0.00	0.00	0.00	0.00
14,200.00	89.73	270.02	7,267.54	858.52	-7,244.75	7,245.05	0.00	0.00	0.00	0.00
14,300.00	89.73	270.02	7,268.00	858.56	-7,344.75	7,345.05	0.00	0.00	0.00	0.00
14,400.00	89.73	270.02	7,268.47	858.60	-7,444.75	7,445.05	0.00	0.00	0.00	0.00
14,500.00	89.73	270.02	7,268.93	858.64	-7,544.75	7,545.05	0.00	0.00	0.00	0.00
14,600.00	89.73	270.02	7,269.40	858.68	-7,644.75	7,645.05	0.00	0.00	0.00	0.00
14,700.00	89.73	270.02	7,269.86	858.72	-7,744.75	7,745.05	0.00	0.00	0.00	0.00

## Plan Report for Wilson Ranch 32N-S27HZ - Permit Rev-3

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)	Toolface Azimuth (°)
14,800.00	89.73	270.02	7,270.32	858.76	-7,844.75	7,845.05	0.00	0.00	0.00	0.00
14,900.00	89.73	270.02	7,270.79	858.80	-7,944.75	7,945.05	0.00	0.00	0.00	0.00
15,000.00	89.73	270.02	7,271.25	858.84	-8,044.75	8,045.04	0.00	0.00	0.00	0.00
15,100.00	89.73	270.02	7,271.72	858.88	-8,144.74	8,145.04	0.00	0.00	0.00	0.00
15,200.00	89.73	270.02	7,272.18	858.92	-8,244.74	8,245.04	0.00	0.00	0.00	0.00
15,300.00	89.73	270.02	7,272.65	858.96	-8,344.74	8,345.04	0.00	0.00	0.00	0.00
15,400.00	89.73	270.02	7,273.11	859.00	-8,444.74	8,445.04	0.00	0.00	0.00	0.00
15,500.00	89.73	270.02	7,273.57	859.05	-8,544.74	8,545.04	0.00	0.00	0.00	0.00
15,600.00	89.73	270.02	7,274.04	859.09	-8,644.74	8,645.04	0.00	0.00	0.00	0.00
15,700.00	89.73	270.02	7,274.50	859.13	-8,744.74	8,745.04	0.00	0.00	0.00	0.00
15,800.00	89.73	270.02	7,274.97	859.17	-8,844.74	8,845.04	0.00	0.00	0.00	0.00
15,900.00	89.73	270.02	7,275.43	859.21	-8,944.74	8,945.04	0.00	0.00	0.00	0.00
16,000.00	89.73	270.02	7,275.90	859.25	-9,044.73	9,045.03	0.00	0.00	0.00	0.00
16,100.00	89.73	270.02	7,276.36	859.29	-9,144.73	9,145.03	0.00	0.00	0.00	0.00
16,200.00	89.73	270.02	7,276.82	859.33	-9,244.73	9,245.03	0.00	0.00	0.00	0.00
16,300.00	89.73	270.02	7,277.29	859.37	-9,344.73	9,345.03	0.00	0.00	0.00	0.00
16,400.00	89.73	270.02	7,277.75	859.41	-9,444.73	9,445.03	0.00	0.00	0.00	0.00
16,500.00	89.73	270.02	7,278.22	859.45	-9,544.73	9,545.03	0.00	0.00	0.00	0.00
16,600.00	89.73	270.02	7,278.68	859.49	-9,644.73	9,645.03	0.00	0.00	0.00	0.00
16,700.00	89.73	270.02	7,279.14	859.53	-9,744.73	9,745.03	0.00	0.00	0.00	0.00
16,800.00	89.73	270.02	7,279.61	859.57	-9,844.73	9,845.03	0.00	0.00	0.00	0.00
16,884.22	89.73	270.02	7,280.00	859.60	-9,928.95	9,929.24	0.00	0.00	0.00	0.00

TD Well @ 16884.22ft - Wilson Ranch 32N-S27HZ\_bhl

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
900.00	900.00	0.00	0.00	Begin Nudge @ 900.00ft
1,300.00	1,298.70	27.67	-3.40	End Nudge @ 1300.00ft
6,633.32	6,580.12	764.39	-93.86	Top of 4.5" Liner @ 6633.32ft
6,733.32	6,679.14	778.21	-95.55	KOP @ 6733.32ft
7,300.00	7,148.87	843.67	-361.76	DLS = 10°/100'
7,620.94	7,237.00	855.89	-665.77	End Build @ 7620.94ft
16,884.22	7,280.00	859.60	-9,928.95	TD Well @ 16884.22ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	270.02	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,620.94	Permit Rev-3	MWD+IFR1+MS+sag
7,620.94	16,884.22	Permit Rev-3	MWD+IFR1+MS+sag

## Plan Report for Wilson Ranch 32N-S27HZ - Permit Rev-3

**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
754.00	754.00	9 5/8"	9-5/8	13-1/2
7,620.94	7,237.00	7"	7	8-3/4

**Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
469.00	469.00	Base Fox Hills		0.00	
754.00	754.00	Surface Csg Setting Depth		0.00	
3,680.46	3,656.00	Parkman		0.00	
4,288.38	4,258.00	Sussex		0.00	
7,135.19	7,043.00	SSPG		0.00	
7,198.74	7,088.00	NBRR		0.00	
7,346.69	7,172.00	N470_B_CK		0.00	
7,515.88	7,227.00	N700_C_CK		0.00	
7,620.94	7,237.00	Landing Target (Heel)		0.00	
16,884.22	7,280.00	Total Depth (Toe)		0.00	

***Targets associated with this wellbore***

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
Wilson Ranch 32N-S27HZ_bhl	7,280.00	859.60	-9,928.95	Point
4N-R68W-Sec. 26_Section Lines	88.00	2,719.18	-554.38	Polygon
4N-R68W-Sec. 27_Section Lines	88.00	2,719.18	-554.38	Polygon
Wilson Ranch 32N-S27HZ_LD	0.00	0.00	0.00	Polygon
Wilson Ranch 32N-S27HZ_SHL	0.00	0.00	0.00	Point

## North Reference Sheet for Wilson Ranch 9-26HZ Pad - Wilson Ranch 32N-S27HZ - Plan C

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB = 17' @ 5057.00usft (D Rig). Northing and Easting are relative to Wilson Ranch 32N-S27HZ

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -105.00°, Longitude Origin:0.000000°, Latitude Origin:0.000000°

False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99960013

Grid Coordinates of Well: 14,629,653.15 usft N, 1,651,167.15 usft E

Geographical Coordinates of Well: 40° 16' 57.45" N, 104° 57' 41.23" W

Grid Convergence at Surface is: 0.02°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,884.22usft  
the Bottom Hole Displacement is 9,966.09usft in the Direction of 274.95° (True).

Magnetic Convergence at surface is: -8.47° (26 November 2014, , IGRF2010)

