

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

Wilson Ranch 16-26HZ Pad

WILSON RANCH 13N-27HZ

Plan A

Plan: Permit Rev-1

Sperry Drilling Services Proposal Report

05 December, 2014

Well Coordinates: 14,628,320.63 N, 1,651,023.54 E (40° 16' 44.27" N, 104° 57' 43.09" W)

Ground Level: 5,074.00 usft

Local Coordinate Origin:

Centered on Well WILSON RANCH 13N-27HZ

Viewing Datum:

RKB = 17' @ 5091.00usft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

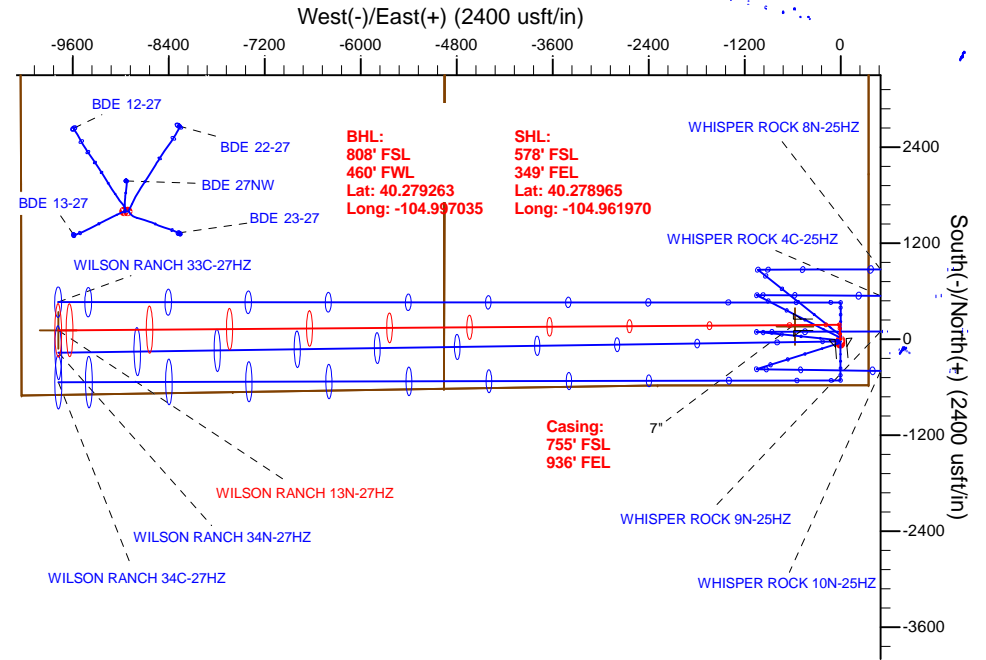
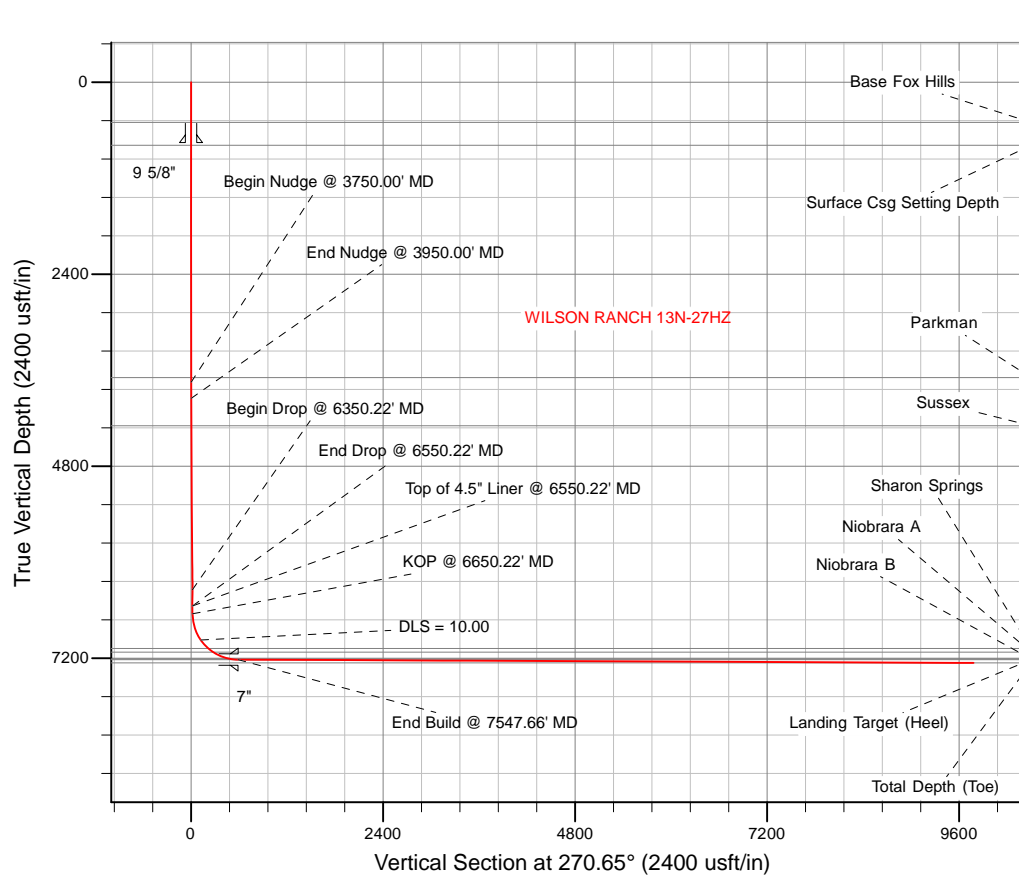
Version: 5000.1 Build: 70

HALLIBURTON

Project: WELD-NAD83-UTMFT13N
Site: Wilson Ranch 16-26HZ Pad
Well: WILSON RANCH 13N-27HZ
Wellbore: Plan A
Design: Permit Rev-1

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	3750.00	0.00	0.00	3750.00	0.00	0.00	0.00	0.00	0.00	
3	3950.00	4.00	355.00	3949.84	6.95	-0.61	2.00	355.00	0.69	
4	6350.22	4.00	355.00	6344.21	173.75	-15.20	0.00	0.00	17.16	
5	6550.22	0.00	0.00	6544.05	180.70	-15.81	2.00	180.00	17.85	
6	6650.22	0.00	0.00	6644.05	180.70	-15.81	0.00	0.00	17.85	
7	7547.66	89.74	269.59	7217.00	176.59	-586.20	10.00	269.59	588.15	
8	16741.66	89.74	269.59	7258.00	110.45	-9779.87	0.00	0.00	9780.49	WILSON RANCH 13N-27HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
4N-R68W-Sec. 26_Section Lines	122.00	4051.63	-410.21	40.290091	-104.963441	Polygon
4N-R68W-Sec. 27_Section Lines	122.00	4051.63	-410.21	40.290091	-104.963441	Polygon
WILSON RANCH 13N-27HZ_Heel	7217.00	157.00	-571.00	40.279396	-104.964017	Point
WILSON RANCH 13N-27HZ_BHL	7258.00	110.45	-9779.87	40.279263	-104.997035	Point

WELL DETAILS: WILSON RANCH 13N-27HZ

Ground Level: 5074.00
RKB = 17' @ 5091.00usft (Drilling Rig)

TVD	MD	Annotation
6544.05	6550.22	Top of 4.5" Liner @ 6550.22' MD
6644.05	6650.22	KOP @ 6650.22' MD

Plan: Permit Rev-1 (WILSON RANCH 13N-27HZ/Plan A)

Created By: Katie Benner Date: 12/5/2014
Reviewed: Date:

Plan Report for WILSON RANCH 13N-27HZ - Permit Rev-1

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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122.00	0.00	0.00	122.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4N-R68W-Sec. 26_Section Lines - 4N-R68W-Sec. 27_Section Lines										
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
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
503.00	0.00	0.00	503.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Base Fox Hills										
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
9 5/8"										
788.00	0.00	0.00	788.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface Csg Setting Depth										
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
1,000.00	0.00	0.00	1,000.00	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	0.00
1,200.00	0.00	0.00	1,200.00	0.00	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	0.00
1,400.00	0.00	0.00	1,400.00	0.00	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	0.00
1,600.00	0.00	0.00	1,600.00	0.00	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	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	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	0.00
2,100.00	0.00	0.00	2,100.00	0.00	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	0.00
2,300.00	0.00	0.00	2,300.00	0.00	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	0.00
2,500.00	0.00	0.00	2,500.00	0.00	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	0.00
2,700.00	0.00	0.00	2,700.00	0.00	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	0.00
2,900.00	0.00	0.00	2,900.00	0.00	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	0.00
3,100.00	0.00	0.00	3,100.00	0.00	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	0.00
3,300.00	0.00	0.00	3,300.00	0.00	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	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,692.00	0.00	0.00	3,692.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Parkman										
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,750.00	0.00	0.00	3,750.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 3750.00' MD										
3,800.00	1.00	355.00	3,800.00	0.43	-0.04	0.04	2.00	2.00	0.00	355.00
3,900.00	3.00	355.00	3,899.93	3.91	-0.34	0.39	2.00	2.00	0.00	0.00
3,950.00	4.00	355.00	3,949.84	6.95	-0.61	0.69	2.00	2.00	0.00	0.00
End Nudge @ 3950.00' MD										
4,000.00	4.00	355.00	3,999.72	10.43	-0.91	1.03	0.00	0.00	0.00	0.00
4,100.00	4.00	355.00	4,099.47	17.38	-1.52	1.72	0.00	0.00	0.00	0.00
4,200.00	4.00	355.00	4,199.23	24.32	-2.13	2.40	0.00	0.00	0.00	0.00

Plan Report for WILSON RANCH 13N-27HZ - Permit Rev-1

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 (°)
4,295.00	4.00	355.00	4,294.00	30.93	-2.71	3.05	0.00	0.00	0.00	0.00
Sussex										
4,300.00	4.00	355.00	4,298.98	31.27	-2.74	3.09	0.00	0.00	0.00	0.00
4,400.00	4.00	355.00	4,398.74	38.22	-3.34	3.78	0.00	0.00	0.00	0.00
4,500.00	4.00	355.00	4,498.50	45.17	-3.95	4.46	0.00	0.00	0.00	0.00
4,600.00	4.00	355.00	4,598.25	52.12	-4.56	5.15	0.00	0.00	0.00	0.00
4,700.00	4.00	355.00	4,698.01	59.07	-5.17	5.83	0.00	0.00	0.00	0.00
4,800.00	4.00	355.00	4,797.77	66.02	-5.78	6.52	0.00	0.00	0.00	0.00
4,900.00	4.00	355.00	4,897.52	72.97	-6.38	7.21	0.00	0.00	0.00	0.00
5,000.00	4.00	355.00	4,997.28	79.92	-6.99	7.89	0.00	0.00	0.00	0.00
5,100.00	4.00	355.00	5,097.04	86.87	-7.60	8.58	0.00	0.00	0.00	0.00
5,200.00	4.00	355.00	5,196.79	93.82	-8.21	9.27	0.00	0.00	0.00	0.00
5,300.00	4.00	355.00	5,296.55	100.76	-8.82	9.95	0.00	0.00	0.00	0.00
5,400.00	4.00	355.00	5,396.31	107.71	-9.42	10.64	0.00	0.00	0.00	0.00
5,500.00	4.00	355.00	5,496.06	114.66	-10.03	11.33	0.00	0.00	0.00	0.00
5,600.00	4.00	355.00	5,595.82	121.61	-10.64	12.01	0.00	0.00	0.00	0.00
5,700.00	4.00	355.00	5,695.57	128.56	-11.25	12.70	0.00	0.00	0.00	0.00
5,800.00	4.00	355.00	5,795.33	135.51	-11.86	13.39	0.00	0.00	0.00	0.00
5,900.00	4.00	355.00	5,895.09	142.46	-12.46	14.07	0.00	0.00	0.00	0.00
6,000.00	4.00	355.00	5,994.84	149.41	-13.07	14.76	0.00	0.00	0.00	0.00
6,100.00	4.00	355.00	6,094.60	156.36	-13.68	15.44	0.00	0.00	0.00	0.00
6,200.00	4.00	355.00	6,194.36	163.31	-14.29	16.13	0.00	0.00	0.00	0.00
6,300.00	4.00	355.00	6,294.11	170.26	-14.90	16.82	0.00	0.00	0.00	0.00
6,350.22	4.00	355.00	6,344.21	173.75	-15.20	17.16	0.00	0.00	0.00	0.00
Begin Drop @ 6350.22' MD										
6,400.00	3.00	355.00	6,393.90	176.77	-15.47	17.46	2.00	-2.00	0.00	180.00
6,500.00	1.00	355.00	6,493.83	180.26	-15.77	17.81	2.00	-2.00	0.00	180.00
6,550.22	0.00	0.00	6,544.05	180.70	-15.81	17.85	2.00	-2.00	0.00	180.00
End Drop @ 6550.22' MD - Top of 4.5" Liner @ 6550.22' MD										
6,600.00	0.00	0.00	6,593.83	180.70	-15.81	17.85	0.00	0.00	0.00	0.00
6,650.22	0.00	0.00	6,644.05	180.70	-15.81	17.85	0.00	0.00	0.00	0.00
KOP @ 6650.22' MD										
6,700.00	4.98	269.59	6,693.77	180.68	-17.97	20.01	10.00	10.00	0.00	269.59
6,800.00	14.98	269.59	6,792.13	180.56	-35.27	37.31	10.00	10.00	0.00	0.00
6,900.00	24.98	269.59	6,885.99	180.31	-69.40	71.43	10.00	10.00	0.00	0.00
7,000.00	34.98	269.59	6,972.50	179.95	-119.30	121.32	10.00	10.00	0.00	0.00
DLS = 10.00										
7,100.00	44.98	269.59	7,049.03	179.49	-183.47	185.48	10.00	10.00	0.00	0.00
7,144.10	49.39	269.59	7,079.00	179.26	-215.80	217.82	10.00	10.00	0.00	0.00
Sharon Springs										
7,200.00	54.98	269.59	7,113.26	178.94	-259.95	261.95	10.00	10.00	0.00	0.00
7,219.17	56.90	269.59	7,124.00	178.83	-275.83	277.83	10.00	10.00	0.00	0.00
Niobrara A										
7,300.00	64.98	269.59	7,163.23	178.32	-346.42	348.41	10.00	10.00	0.00	0.00
7,400.00	74.98	269.59	7,197.43	177.64	-440.25	442.23	10.00	10.00	0.00	0.00
7,448.50	79.83	269.59	7,208.00	177.30	-487.57	489.54	10.00	10.00	0.00	0.00
Niobrara B										
7,500.00	84.98	269.59	7,214.81	176.94	-538.60	540.56	10.00	10.00	0.00	0.00
7,532.62	88.24	269.59	7,216.74	176.70	-571.16	573.12	10.00	10.00	0.00	0.00
WILSON RANCH 13N-27HZ_Heel										
7,547.66	89.74	269.59	7,217.00	176.59	-586.19	588.15	10.00	10.00	0.00	0.00
End Build @ 7547.66' MD - 7"										
7,547.74	89.74	269.59	7,217.00	176.59	-586.27	588.23	0.55	0.55	0.00	0.00
Landing Target (Heel)										
7,600.00	89.74	269.59	7,217.23	176.22	-638.53	640.48	0.00	0.00	0.00	0.00
7,700.00	89.74	269.59	7,217.68	175.50	-738.53	740.46	0.00	0.00	0.00	0.00
7,800.00	89.74	269.59	7,218.12	174.78	-838.52	840.44	0.00	0.00	0.00	0.00
7,900.00	89.74	269.59	7,218.57	174.06	-938.52	940.43	0.00	0.00	0.00	0.00

Plan Report for WILSON RANCH 13N-27HZ - Permit Rev-1

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 (°)
8,000.00	89.74	269.59	7,219.02	173.34	-1,038.52	1,040.41	0.00	0.00	0.00	0.00
8,100.00	89.74	269.59	7,219.46	172.62	-1,138.51	1,140.39	0.00	0.00	0.00	0.00
8,200.00	89.74	269.59	7,219.91	171.90	-1,238.51	1,240.37	0.00	0.00	0.00	0.00
8,300.00	89.74	269.59	7,220.35	171.18	-1,338.51	1,340.35	0.00	0.00	0.00	0.00
8,400.00	89.74	269.59	7,220.80	170.46	-1,438.50	1,440.34	0.00	0.00	0.00	0.00
8,500.00	89.74	269.59	7,221.25	169.74	-1,538.50	1,540.32	0.00	0.00	0.00	0.00
8,600.00	89.74	269.59	7,221.69	169.02	-1,638.50	1,640.30	0.00	0.00	0.00	0.00
8,700.00	89.74	269.59	7,222.14	168.30	-1,738.49	1,740.28	0.00	0.00	0.00	0.00
8,800.00	89.74	269.59	7,222.58	167.59	-1,838.49	1,840.26	0.00	0.00	0.00	0.00
8,900.00	89.74	269.59	7,223.03	166.87	-1,938.48	1,940.25	0.00	0.00	0.00	0.00
9,000.00	89.74	269.59	7,223.48	166.15	-2,038.48	2,040.23	0.00	0.00	0.00	0.00
9,100.00	89.74	269.59	7,223.92	165.43	-2,138.48	2,140.21	0.00	0.00	0.00	0.00
9,200.00	89.74	269.59	7,224.37	164.71	-2,238.47	2,240.19	0.00	0.00	0.00	0.00
9,300.00	89.74	269.59	7,224.81	163.99	-2,338.47	2,340.17	0.00	0.00	0.00	0.00
9,400.00	89.74	269.59	7,225.26	163.27	-2,438.47	2,440.15	0.00	0.00	0.00	0.00
9,500.00	89.74	269.59	7,225.71	162.55	-2,538.46	2,540.14	0.00	0.00	0.00	0.00
9,600.00	89.74	269.59	7,226.15	161.83	-2,638.46	2,640.12	0.00	0.00	0.00	0.00
9,700.00	89.74	269.59	7,226.60	161.11	-2,738.46	2,740.10	0.00	0.00	0.00	0.00
9,800.00	89.74	269.59	7,227.04	160.39	-2,838.45	2,840.08	0.00	0.00	0.00	0.00
9,900.00	89.74	269.59	7,227.49	159.67	-2,938.45	2,940.06	0.00	0.00	0.00	0.00
10,000.00	89.74	269.59	7,227.94	158.95	-3,038.44	3,040.05	0.00	0.00	0.00	0.00
10,100.00	89.74	269.59	7,228.38	158.23	-3,138.44	3,140.03	0.00	0.00	0.00	0.00
10,200.00	89.74	269.59	7,228.83	157.51	-3,238.44	3,240.01	0.00	0.00	0.00	0.00
10,300.00	89.74	269.59	7,229.27	156.79	-3,338.43	3,339.99	0.00	0.00	0.00	0.00
10,400.00	89.74	269.59	7,229.72	156.07	-3,438.43	3,439.97	0.00	0.00	0.00	0.00
10,500.00	89.74	269.59	7,230.17	155.36	-3,538.43	3,539.96	0.00	0.00	0.00	0.00
10,600.00	89.74	269.59	7,230.61	154.64	-3,638.42	3,639.94	0.00	0.00	0.00	0.00
10,700.00	89.74	269.59	7,231.06	153.92	-3,738.42	3,739.92	0.00	0.00	0.00	0.00
10,800.00	89.74	269.59	7,231.50	153.20	-3,838.42	3,839.90	0.00	0.00	0.00	0.00
10,900.00	89.74	269.59	7,231.95	152.48	-3,938.41	3,939.88	0.00	0.00	0.00	0.00
11,000.00	89.74	269.59	7,232.40	151.76	-4,038.41	4,039.87	0.00	0.00	0.00	0.00
11,100.00	89.74	269.59	7,232.84	151.04	-4,138.41	4,139.85	0.00	0.00	0.00	0.00
11,200.00	89.74	269.59	7,233.29	150.32	-4,238.40	4,239.83	0.00	0.00	0.00	0.00
11,300.00	89.74	269.59	7,233.73	149.60	-4,338.40	4,339.81	0.00	0.00	0.00	0.00
11,400.00	89.74	269.59	7,234.18	148.88	-4,438.39	4,439.79	0.00	0.00	0.00	0.00
11,500.00	89.74	269.59	7,234.62	148.16	-4,538.39	4,539.78	0.00	0.00	0.00	0.00
11,600.00	89.74	269.59	7,235.07	147.44	-4,638.39	4,639.76	0.00	0.00	0.00	0.00
11,700.00	89.74	269.59	7,235.52	146.72	-4,738.38	4,739.74	0.00	0.00	0.00	0.00
11,800.00	89.74	269.59	7,235.96	146.00	-4,838.38	4,839.72	0.00	0.00	0.00	0.00
11,900.00	89.74	269.59	7,236.41	145.28	-4,938.38	4,939.70	0.00	0.00	0.00	0.00
12,000.00	89.74	269.59	7,236.85	144.56	-5,038.37	5,039.68	0.00	0.00	0.00	0.00
12,100.00	89.74	269.59	7,237.30	143.85	-5,138.37	5,139.67	0.00	0.00	0.00	0.00
12,200.00	89.74	269.59	7,237.75	143.13	-5,238.37	5,239.65	0.00	0.00	0.00	0.00
12,300.00	89.74	269.59	7,238.19	142.41	-5,338.36	5,339.63	0.00	0.00	0.00	0.00
12,400.00	89.74	269.59	7,238.64	141.69	-5,438.36	5,439.61	0.00	0.00	0.00	0.00
12,500.00	89.74	269.59	7,239.08	140.97	-5,538.36	5,539.59	0.00	0.00	0.00	0.00
12,600.00	89.74	269.59	7,239.53	140.25	-5,638.35	5,639.58	0.00	0.00	0.00	0.00
12,700.00	89.74	269.59	7,239.98	139.53	-5,738.35	5,739.56	0.00	0.00	0.00	0.00
12,800.00	89.74	269.59	7,240.42	138.81	-5,838.34	5,839.54	0.00	0.00	0.00	0.00
12,900.00	89.74	269.59	7,240.87	138.09	-5,938.34	5,939.52	0.00	0.00	0.00	0.00
13,000.00	89.74	269.59	7,241.31	137.37	-6,038.34	6,039.50	0.00	0.00	0.00	0.00
13,100.00	89.74	269.59	7,241.76	136.65	-6,138.33	6,139.49	0.00	0.00	0.00	0.00
13,200.00	89.74	269.59	7,242.21	135.93	-6,238.33	6,239.47	0.00	0.00	0.00	0.00
13,300.00	89.74	269.59	7,242.65	135.21	-6,338.33	6,339.45	0.00	0.00	0.00	0.00
13,400.00	89.74	269.59	7,243.10	134.49	-6,438.32	6,439.43	0.00	0.00	0.00	0.00
13,500.00	89.74	269.59	7,243.54	133.77	-6,538.32	6,539.41	0.00	0.00	0.00	0.00
13,600.00	89.74	269.59	7,243.99	133.05	-6,638.32	6,639.40	0.00	0.00	0.00	0.00
13,700.00	89.74	269.59	7,244.44	132.34	-6,738.31	6,739.38	0.00	0.00	0.00	0.00
13,800.00	89.74	269.59	7,244.88	131.62	-6,838.31	6,839.36	0.00	0.00	0.00	0.00
13,900.00	89.74	269.59	7,245.33	130.90	-6,938.31	6,939.34	0.00	0.00	0.00	0.00

Plan Report for WILSON RANCH 13N-27HZ - Permit Rev-1

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 (°)
14,000.00	89.74	269.59	7,245.77	130.18	-7,038.30	7,039.32	0.00	0.00	0.00	0.00
14,100.00	89.74	269.59	7,246.22	129.46	-7,138.30	7,139.30	0.00	0.00	0.00	0.00
14,200.00	89.74	269.59	7,246.67	128.74	-7,238.29	7,239.29	0.00	0.00	0.00	0.00
14,300.00	89.74	269.59	7,247.11	128.02	-7,338.29	7,339.27	0.00	0.00	0.00	0.00
14,400.00	89.74	269.59	7,247.56	127.30	-7,438.29	7,439.25	0.00	0.00	0.00	0.00
14,500.00	89.74	269.59	7,248.00	126.58	-7,538.28	7,539.23	0.00	0.00	0.00	0.00
14,600.00	89.74	269.59	7,248.45	125.86	-7,638.28	7,639.21	0.00	0.00	0.00	0.00
14,700.00	89.74	269.59	7,248.90	125.14	-7,738.28	7,739.20	0.00	0.00	0.00	0.00
14,800.00	89.74	269.59	7,249.34	124.42	-7,838.27	7,839.18	0.00	0.00	0.00	0.00
14,900.00	89.74	269.59	7,249.79	123.70	-7,938.27	7,939.16	0.00	0.00	0.00	0.00
15,000.00	89.74	269.59	7,250.23	122.98	-8,038.27	8,039.14	0.00	0.00	0.00	0.00
15,100.00	89.74	269.59	7,250.68	122.26	-8,138.26	8,139.12	0.00	0.00	0.00	0.00
15,200.00	89.74	269.59	7,251.13	121.54	-8,238.26	8,239.11	0.00	0.00	0.00	0.00
15,300.00	89.74	269.59	7,251.57	120.83	-8,338.26	8,339.09	0.00	0.00	0.00	0.00
15,400.00	89.74	269.59	7,252.02	120.11	-8,438.25	8,439.07	0.00	0.00	0.00	0.00
15,500.00	89.74	269.59	7,252.46	119.39	-8,538.25	8,539.05	0.00	0.00	0.00	0.00
15,600.00	89.74	269.59	7,252.91	118.67	-8,638.24	8,639.03	0.00	0.00	0.00	0.00
15,700.00	89.74	269.59	7,253.35	117.95	-8,738.24	8,739.02	0.00	0.00	0.00	0.00
15,800.00	89.74	269.59	7,253.80	117.23	-8,838.24	8,839.00	0.00	0.00	0.00	0.00
15,900.00	89.74	269.59	7,254.25	116.51	-8,938.23	8,938.98	0.00	0.00	0.00	0.00
16,000.00	89.74	269.59	7,254.69	115.79	-9,038.23	9,038.96	0.00	0.00	0.00	0.00
16,100.00	89.74	269.59	7,255.14	115.07	-9,138.23	9,138.94	0.00	0.00	0.00	0.00
16,200.00	89.74	269.59	7,255.58	114.35	-9,238.22	9,238.93	0.00	0.00	0.00	0.00
16,300.00	89.74	269.59	7,256.03	113.63	-9,338.22	9,338.91	0.00	0.00	0.00	0.00
16,400.00	89.74	269.59	7,256.48	112.91	-9,438.22	9,438.89	0.00	0.00	0.00	0.00
16,500.00	89.74	269.59	7,256.92	112.19	-9,538.21	9,538.87	0.00	0.00	0.00	0.00
16,600.00	89.74	269.59	7,257.37	111.47	-9,638.21	9,638.85	0.00	0.00	0.00	0.00
16,700.00	89.74	269.59	7,257.81	110.75	-9,738.20	9,738.83	0.00	0.00	0.00	0.00
16,741.66	89.74	269.59	7,258.00	110.45	-9,779.86	9,780.49	0.00	0.00	0.00	0.00

TD Well @ 16741.66' MD - WILSON RANCH 13N-27HZ_BHL

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,750.00	3,750.00	0.00	0.00	Begin Nudge @ 3750.00' MD
3,950.00	3,949.84	6.95	-0.61	End Nudge @ 3950.00' MD
6,350.22	6,344.21	173.75	-15.20	Begin Drop @ 6350.22' MD
6,550.22	6,544.05	180.70	-15.81	End Drop @ 6550.22' MD
6,550.22	6,544.05	180.70	-15.81	Top of 4.5" Liner @ 6550.22' MD
6,650.22	6,644.05	180.70	-15.81	KOP @ 6650.22' MD
7,000.00	6,972.50	179.95	-119.30	DLS = 10.00
7,547.66	7,217.00	176.59	-586.20	End Build @ 7547.66' MD
16,741.66	7,258.00	110.45	-9,779.86	TD Well @ 16741.66' MD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
TD	No Target (Freehand)	270.65	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,547.66	Permit Rev-1	MWD+IFR1
7,547.66	16,741.41	Permit Rev-1	MWD+IFR1

Plan Report for WILSON RANCH 13N-27HZ - Permit Rev-1**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
7,547.66	7,217.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
503.00	503.00	Base Fox Hills			
788.00	788.00	Surface Csg Setting Depth			
3,692.00	3,692.00	Parkman			
4,295.00	4,294.00	Sussex			
7,144.10	7,079.00	Sharon Springs			
7,219.17	7,124.00	Niobrara A			
7,448.50	7,208.00	Niobrara B			
7,547.74	7,217.00	Landing Target (Heel)			
16,741.66	7,258.00	Total Depth (Toe)			

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
WILSON RANCH 13N-27HZ_Heel	7,217.00	157.00	-571.00	Point
WILSON RANCH 13N-27HZ_BHL	7,258.00	110.45	-9,779.87	Point
4N-R68W-Sec. 26_Section Lines	122.00	4,051.63	-410.21	Polygon
4N-R68W-Sec. 27_Section Lines	122.00	4,051.63	-410.21	Polygon

North Reference Sheet for Wilson Ranch 16-26HZ Pad - WILSON RANCH 13N-27HZ - Plan A

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' @ 5091.00usft (Drilling Rig). Northing and Easting are relative to WILSON RANCH 13N-27HZ

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: 14,628,320.63 usft N, 1,651,023.54 usft E

Geographical Coordinates of Well: 40° 16' 44.27" N, 104° 57' 43.09" W

Grid Convergence at Surface is: 0.02°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,741.66usft
the Bottom Hole Displacement is 9,780.49usft in the Direction of 270.65° (True).

Magnetic Convergence at surface is: -8.47° (25 November 2014, , IGRF2010)

