

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 28-T2N-R67W

HUNZIKER 27C-4HZ

Plan A

Plan: Rev A0 Permit

## Sperry Drilling Services

### Proposal Report

01 October, 2014

Well Coordinates: 1,281,033.49 N, 3,170,040.65 E (40° 06' 11.62" N, 104° 53' 31.63" W)

Ground Level: 5,050.00 usft

Local Coordinate Origin:

Centered on Well HUNZIKER 27C-4HZ

Viewing Datum:

RKB = 17' @ 5067.00usft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
 Site: Sec. 28-T2N-R67W  
 Well: HUNZIKER 27C-4HZ  
 Wellbore: Plan A  
 Design: Rev A0 Permit

# Anadarko Petroleum Corp.

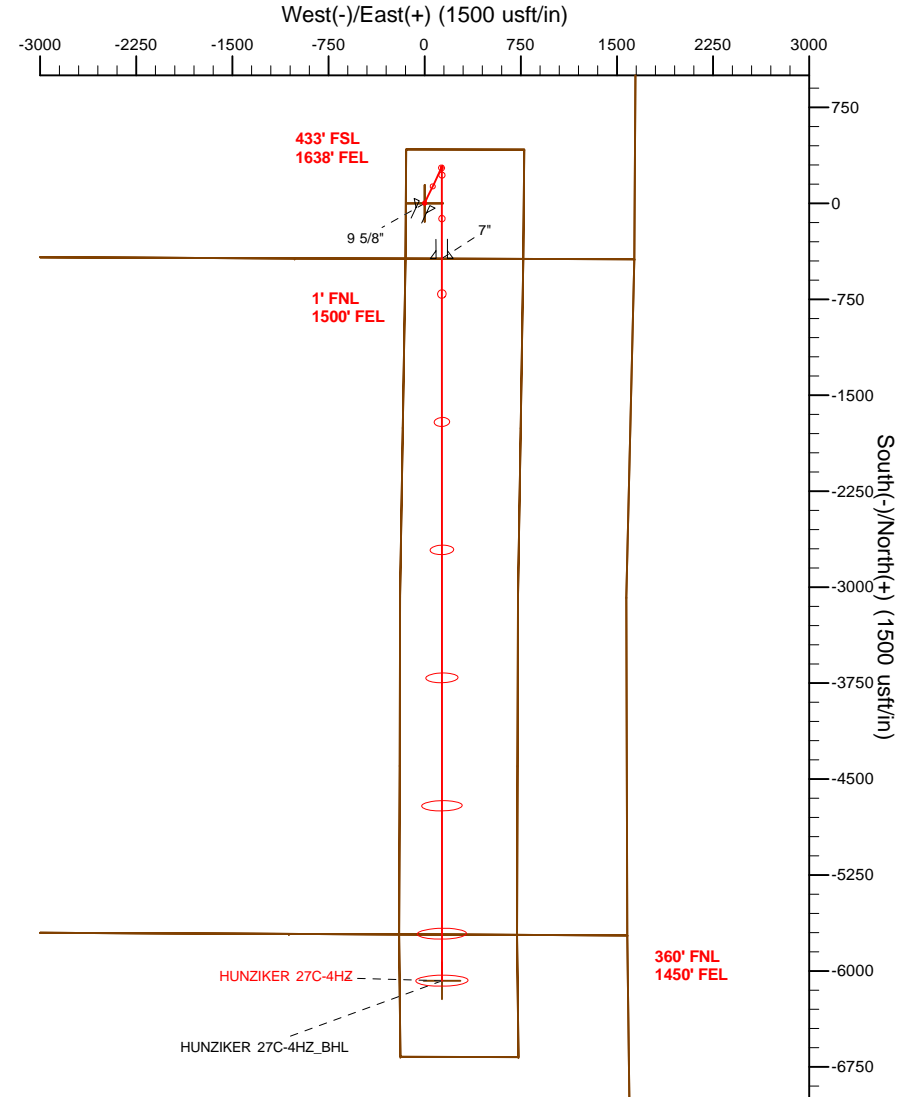
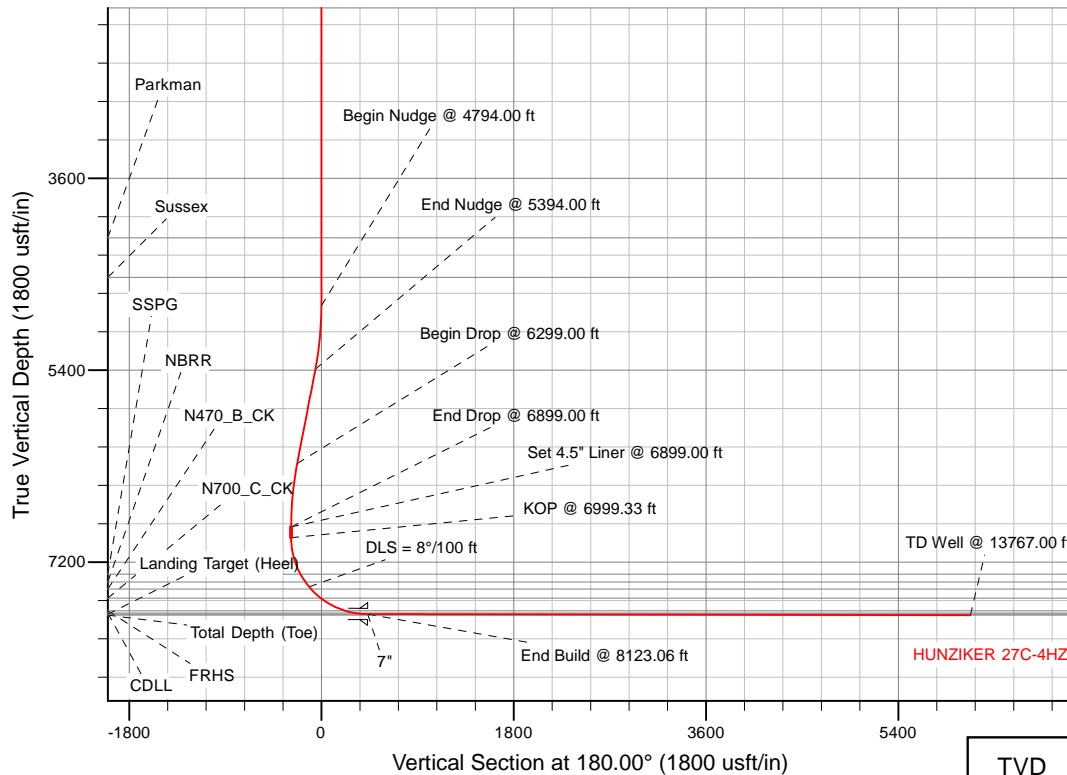


### SECTION DETAILS

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	4794.00	0.00	0.00	4794.00	0.00	0.00	0.00	0.00	0.00	
3	5394.00	12.00	25.50	5389.62	56.50	26.95	2.00	25.50	-56.50	
4	6299.00	12.00	25.50	6274.85	226.33	107.96	0.00	0.00	-226.33	
5	6899.00	0.00	0.00	6870.47	282.84	134.91	2.00	-180.00	-282.84	
6	6999.33	0.00	0.00	6970.80	282.84	134.91	0.00	0.00	-282.84	
7	8123.06	89.90	180.00	7687.00	-432.09	134.93	8.00	180.00	432.09	
8	13767.00	89.90	180.00	7697.00	-6076.02	135.15	0.00	0.00	6076.02	HUNZIKER 27C-4HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HUNZIKER 27C-4HZ_LD	0.00	0.00	0.00	40° 6' 11.624 N	104° 53' 31.632 W	Polygon
HUNZIKER 27C-4HZ_SEC	0.00	0.00	0.00	40° 6' 11.624 N	104° 53' 31.632 W	Polygon
HUNZIKER 27C-4HZ_SHL	--	0.00	0.00	40° 6' 11.624 N	104° 53' 31.632 W	Point
HUNZIKER 27C-4HZ_BHL	7697.00	-6076.02	135.15	40° 5' 11.580 N	104° 53' 29.893 W	Point



TVD	MD	Annotation
6970.80	6999.33	KOP @ 6999.33 ft

WELL DETAILS: HUNZIKER 27C-4HZ	
Ground Level:	5050.00
RKB = 17' @ 5067.00usft (Drilling Rig)	
Plan: Rev A0 Permit (HUNZIKER 27C-4HZ/Plan A)	
Created By: Katie Benner	Date: 9/29/2014
Reviewed:	Date:

Project: Weld County, CO (NAD 83)  
 Site: Sec. 28-T2N-R67W  
 Well: HUNZIKER 27C-4HZ  
 Wellbore: Plan A  
 Design: Rev A0 Permit

# Anadarko Petroleum Corp.

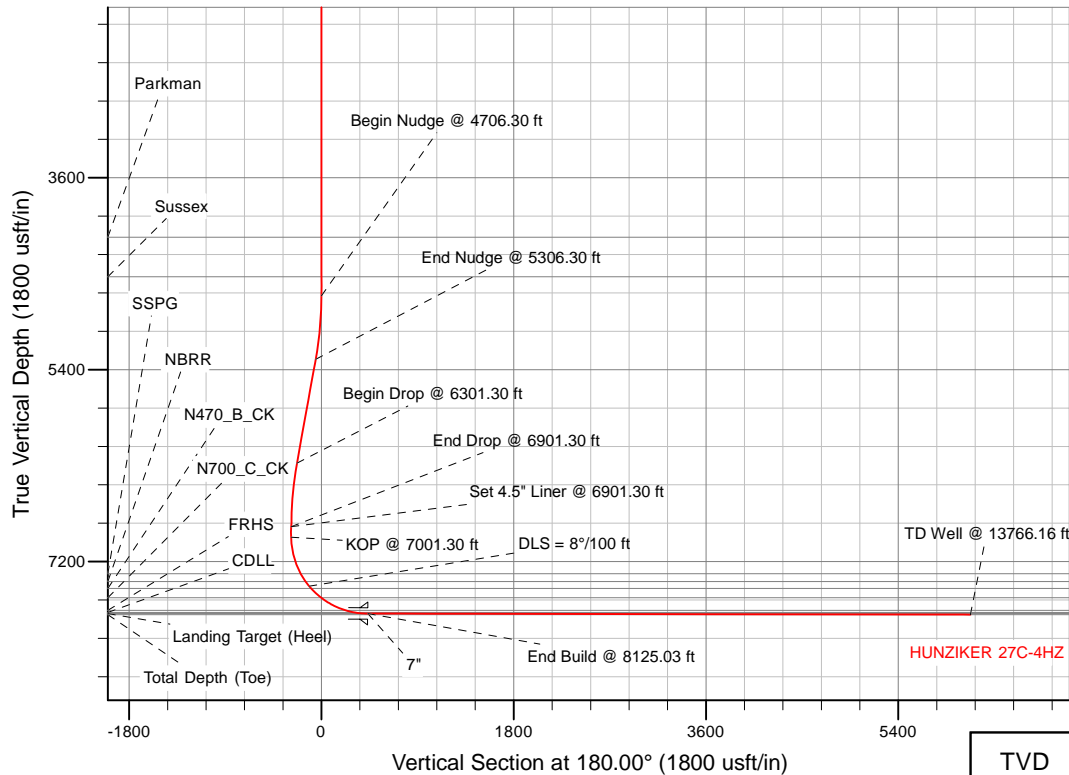


### SECTION DETAILS

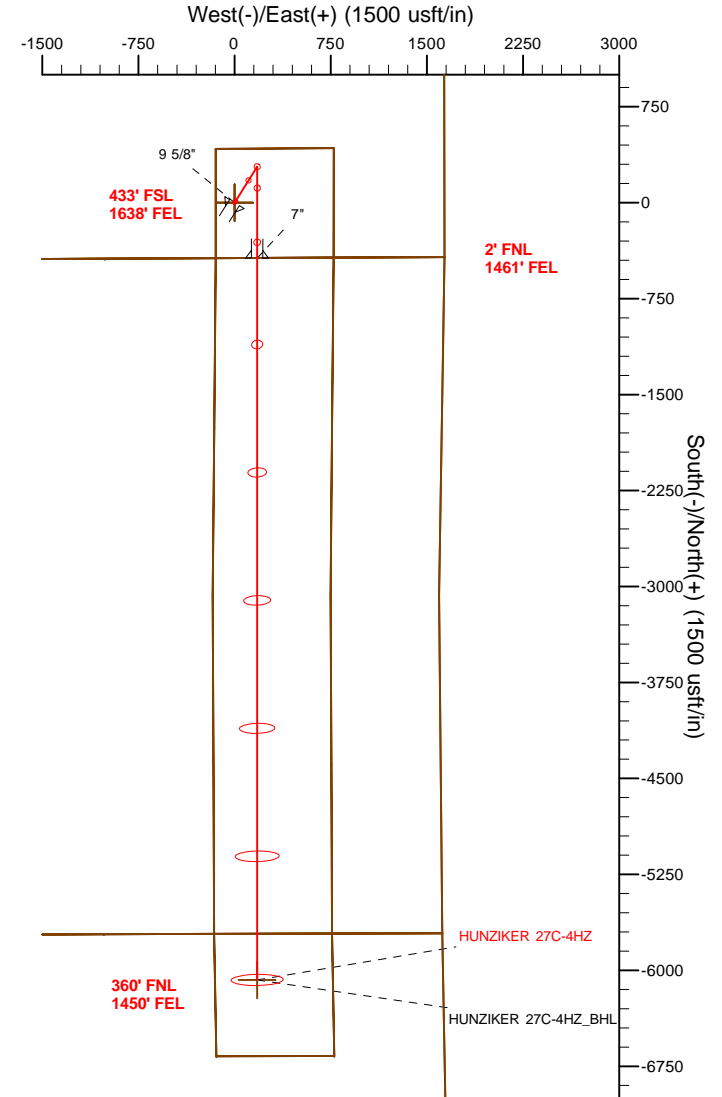
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	4706.30	0.00	0.00	4706.30	0.00	0.00	0.00	0.00	0.00	
3	5306.30	12.00	32.17	5301.92	52.99	33.33	2.00	32.17	-52.99	
4	6301.30	12.00	32.17	6275.18	228.10	143.48	0.00	0.00	-228.10	
5	6901.30	0.00	0.00	6870.80	281.09	176.81	2.00	-180.00	-281.09	
6	7001.30	0.00	0.00	6970.80	281.09	176.81	0.00	0.00	-281.09	
7	8125.03	89.90	180.00	7687.00	-433.83	176.81	8.00	180.00	433.83	
8	13766.16	89.90	180.00	7697.00	-6074.95	176.80	0.00	0.00	6074.95	HUNZIKER 27C-4HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
HUNZIKER 27C-4HZ_LD	0.00	0.00	0.00	40.103229	-104.892120	Polygon
HUNZIKER 27C-4HZ_SEC	0.00	0.00	0.00	40.103229	-104.892120	Polygon
HUNZIKER 27C-4HZ_SHL	--	0.00	0.00	40.103229	-104.892120	Point
HUNZIKER 27C-4HZ_BHL	7697.00	-6074.95	176.80	40.086550	-104.891637	Point



TVD	MD	Annotation
6970.80	7001.30	KOP @ 7001.30 ft 7687.00



WELL DETAILS: HUNZIKER 27C-4HZ	
Ground Level:	5050.00
RKB = 17' @ 5067.00usft (Drilling Rig)	
Plan: Rev A0 Permit (HUNZIKER 27C-4HZ/Plan A)	
Created By: Katie Benner	Date: 9/29/2014
Reviewed: _____	Date: _____

**Plan Report for HUNZIKER 27C-4HZ - Rev A0 Permit**

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>Tie-On to Surface @ 0.00 ft - HUNZIKER 27C-4HZ_SEC - HUNZIKER 27C-4HZ_LD - HUNZIKER 27C-4HZ_SHL</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
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
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
1,058.00	0.00	0.00	1,058.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
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
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,158.00	0.00	0.00	4,158.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,528.00	0.00	0.00	4,528.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4,706.30	0.00	0.00	4,706.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 4706.30 ft</b>										
4,800.00	1.87	32.56	4,799.98	1.29	0.82	-1.30	2.00	2.00	0.00	32.56

**Plan Report for HUNZIKER 27C-4HZ - Rev A0 Permit**

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 (°)
4,900.00	3.87	32.56	4,899.85	5.52	3.52	-5.54	2.00	2.00	0.00	0.00
5,000.00	5.87	32.56	4,999.49	12.68	8.10	-12.73	2.00	2.00	0.00	0.00
5,100.00	7.87	32.56	5,098.76	22.76	14.54	-22.86	2.00	2.00	0.00	0.00
5,200.00	9.87	32.56	5,197.56	35.76	22.84	-35.92	2.00	2.00	0.00	0.00
5,300.00	11.87	32.56	5,295.76	51.66	32.99	-51.89	2.00	2.00	0.00	0.00
5,306.30	12.00	32.56	5,301.92	52.76	33.69	-52.99	2.00	2.00	0.00	0.00
<b>End Nudge @ 5306.30 ft</b>										
5,400.00	12.00	32.56	5,393.58	69.18	44.18	-69.48	0.00	0.00	0.00	0.00
5,500.00	12.00	32.56	5,491.39	86.70	55.37	-87.08	0.00	0.00	0.00	0.00
5,600.00	12.00	32.56	5,589.21	104.23	66.56	-104.68	0.00	0.00	0.00	0.00
5,700.00	12.00	32.56	5,687.02	121.75	77.75	-122.28	0.00	0.00	0.00	0.00
5,800.00	12.00	32.56	5,784.83	139.27	88.94	-139.88	0.00	0.00	0.00	0.00
5,900.00	12.00	32.56	5,882.65	156.79	100.13	-157.48	0.00	0.00	0.00	0.00
6,000.00	12.00	32.56	5,980.46	174.32	111.32	-175.08	0.00	0.00	0.00	0.00
6,100.00	12.00	32.56	6,078.28	191.84	122.51	-192.68	0.00	0.00	0.00	0.00
6,200.00	12.00	32.56	6,176.09	209.36	133.70	-210.27	0.00	0.00	0.00	0.00
6,300.00	12.00	32.56	6,273.91	226.89	144.89	-227.87	0.00	0.00	0.00	0.00
6,301.30	12.00	32.56	6,275.18	227.11	145.04	-228.10	0.00	0.00	0.00	0.00
<b>Begin Drop @ 6301.30 ft</b>										
6,400.00	10.03	32.56	6,372.06	243.00	155.19	-244.06	2.00	-2.00	0.00	-180.00
6,500.00	8.03	32.56	6,470.81	256.23	163.63	-257.34	2.00	-2.00	0.00	-180.00
6,600.00	6.03	32.56	6,570.06	266.53	170.21	-267.69	2.00	-2.00	0.00	-180.00
6,700.00	4.03	32.56	6,669.67	273.92	174.93	-275.11	2.00	-2.00	0.00	-180.00
6,800.00	2.03	32.56	6,769.52	278.37	177.77	-279.58	2.00	-2.00	0.00	-180.00
6,900.00	0.03	32.56	6,869.50	279.88	178.73	-281.09	2.00	-2.00	0.00	-180.00
6,901.30	0.00	0.00	6,870.80	279.88	178.73	-281.09	2.00	-2.00	-2,504.72	-180.00
<b>End Drop @ 6901.30 ft - Set 7" Casing @ 6901.30 ft</b>										
7,000.00	0.00	0.00	6,969.50	279.88	178.73	-281.09	0.00	0.00	0.00	0.00
7,001.30	0.00	0.00	6,970.80	279.88	178.73	-281.09	0.00	0.00	0.00	0.00
<b>KOP @ 7001.30 ft</b>										
7,100.00	7.90	180.39	7,069.19	273.09	178.69	-274.30	8.00	8.00	-181.97	-179.61
7,200.00	15.90	180.39	7,166.96	252.49	178.54	-253.71	8.00	8.00	0.00	0.00
7,300.00	23.90	180.39	7,260.92	218.49	178.31	-219.70	8.00	8.00	0.00	0.00
7,356.93	28.45	180.39	7,312.00	193.38	178.14	-194.60	8.00	8.00	0.00	0.00
<b>SSPG</b>										
7,400.00	31.90	180.39	7,349.23	171.74	177.99	-172.95	8.00	8.00	0.00	0.00
7,445.42	35.53	180.39	7,387.00	146.54	177.82	-147.75	8.00	8.00	0.00	0.00
<b>NBRR</b>										
7,500.00	39.90	180.39	7,430.17	113.16	177.59	-114.37	8.00	8.00	0.00	0.00
<b>DLS = 8°/100 ft</b>										
7,528.95	42.21	180.39	7,452.00	94.14	177.46	-95.36	8.00	8.00	0.00	0.00
<b>N470_B_CK</b>										
7,600.00	47.90	180.39	7,502.17	43.88	177.11	-45.09	8.00	8.00	0.00	0.00
7,654.27	52.24	180.39	7,537.00	2.27	176.83	-3.48	8.00	8.00	0.00	0.00
<b>N700_C_CK</b>										
7,700.00	55.90	180.39	7,563.83	-34.75	176.57	33.53	8.00	8.00	0.00	0.00
7,800.00	63.90	180.39	7,613.95	-121.18	175.98	119.98	8.00	8.00	0.00	0.00
7,900.00	71.90	180.39	7,651.54	-213.76	175.35	212.55	8.00	8.00	0.00	0.00
7,918.27	73.36	180.39	7,657.00	-231.19	175.23	229.99	8.00	8.00	0.00	0.00
<b>FRHS</b>										
8,000.00	79.90	180.39	7,675.89	-310.66	174.68	309.46	8.00	8.00	0.00	0.00
8,006.48	80.41	180.39	7,677.00	-317.04	174.64	315.84	8.00	8.00	0.00	0.00
<b>CDLL</b>										
8,100.00	87.90	180.39	7,686.52	-410.01	174.00	408.81	8.00	8.00	0.00	0.00
8,125.03	89.90	180.39	7,687.00	-435.04	173.83	433.83	8.00	8.00	0.00	0.00
<b>End Build @ 8125.03 ft - 7"</b>										
8,125.49	89.90	180.39	7,687.00	-435.50	173.83	434.29	0.00	0.00	0.00	0.00
<b>Landing Target (Heel)</b>										

**Plan Report for HUNZIKER 27C-4HZ - Rev A0 Permit**

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 (°)
8,200.00	89.90	180.39	7,687.13	-510.00	173.32	508.80	0.00	0.00	0.00	0.00
8,300.00	89.90	180.39	7,687.31	-610.00	172.63	608.80	0.00	0.00	0.00	0.00
8,400.00	89.90	180.39	7,687.49	-710.00	171.94	708.80	0.00	0.00	0.00	0.00
8,500.00	89.90	180.39	7,687.66	-810.00	171.26	808.80	0.00	0.00	0.00	0.00
8,600.00	89.90	180.39	7,687.84	-909.99	170.57	908.80	0.00	0.00	0.00	0.00
8,700.00	89.90	180.39	7,688.02	-1,009.99	169.89	1,008.80	0.00	0.00	0.00	0.00
8,800.00	89.90	180.39	7,688.20	-1,109.99	169.20	1,108.80	0.00	0.00	0.00	0.00
8,900.00	89.90	180.39	7,688.37	-1,209.99	168.52	1,208.80	0.00	0.00	0.00	0.00
9,000.00	89.90	180.39	7,688.55	-1,309.98	167.83	1,308.80	0.00	0.00	0.00	0.00
9,100.00	89.90	180.39	7,688.73	-1,409.98	167.14	1,408.80	0.00	0.00	0.00	0.00
9,200.00	89.90	180.39	7,688.90	-1,509.98	166.46	1,508.80	0.00	0.00	0.00	0.00
9,300.00	89.90	180.39	7,689.08	-1,609.98	165.77	1,608.80	0.00	0.00	0.00	0.00
9,400.00	89.90	180.39	7,689.26	-1,709.97	165.09	1,708.80	0.00	0.00	0.00	0.00
9,500.00	89.90	180.39	7,689.44	-1,809.97	164.40	1,808.80	0.00	0.00	0.00	0.00
9,600.00	89.90	180.39	7,689.61	-1,909.97	163.72	1,908.80	0.00	0.00	0.00	0.00
9,700.00	89.90	180.39	7,689.79	-2,009.97	163.03	2,008.80	0.00	0.00	0.00	0.00
9,800.00	89.90	180.39	7,689.97	-2,109.96	162.34	2,108.80	0.00	0.00	0.00	0.00
9,900.00	89.90	180.39	7,690.15	-2,209.96	161.66	2,208.80	0.00	0.00	0.00	0.00
10,000.00	89.90	180.39	7,690.32	-2,309.96	160.97	2,308.80	0.00	0.00	0.00	0.00
10,100.00	89.90	180.39	7,690.50	-2,409.96	160.29	2,408.80	0.00	0.00	0.00	0.00
10,200.00	89.90	180.39	7,690.68	-2,509.95	159.60	2,508.80	0.00	0.00	0.00	0.00
10,300.00	89.90	180.39	7,690.86	-2,609.95	158.92	2,608.80	0.00	0.00	0.00	0.00
10,400.00	89.90	180.39	7,691.03	-2,709.95	158.23	2,708.80	0.00	0.00	0.00	0.00
10,500.00	89.90	180.39	7,691.21	-2,809.95	157.54	2,808.80	0.00	0.00	0.00	0.00
10,600.00	89.90	180.39	7,691.39	-2,909.94	156.86	2,908.80	0.00	0.00	0.00	0.00
10,700.00	89.90	180.39	7,691.56	-3,009.94	156.17	3,008.80	0.00	0.00	0.00	0.00
10,800.00	89.90	180.39	7,691.74	-3,109.94	155.49	3,108.80	0.00	0.00	0.00	0.00
10,900.00	89.90	180.39	7,691.92	-3,209.94	154.80	3,208.80	0.00	0.00	0.00	0.00
11,000.00	89.90	180.39	7,692.10	-3,309.93	154.12	3,308.80	0.00	0.00	0.00	0.00
11,100.00	89.90	180.39	7,692.27	-3,409.93	153.43	3,408.80	0.00	0.00	0.00	0.00
11,200.00	89.90	180.39	7,692.45	-3,509.93	152.74	3,508.80	0.00	0.00	0.00	0.00
11,300.00	89.90	180.39	7,692.63	-3,609.93	152.06	3,608.80	0.00	0.00	0.00	0.00
11,400.00	89.90	180.39	7,692.81	-3,709.92	151.37	3,708.80	0.00	0.00	0.00	0.00
11,500.00	89.90	180.39	7,692.98	-3,809.92	150.69	3,808.80	0.00	0.00	0.00	0.00
11,600.00	89.90	180.39	7,693.16	-3,909.92	150.00	3,908.80	0.00	0.00	0.00	0.00
11,700.00	89.90	180.39	7,693.34	-4,009.92	149.32	4,008.80	0.00	0.00	0.00	0.00
11,800.00	89.90	180.39	7,693.51	-4,109.91	148.63	4,108.80	0.00	0.00	0.00	0.00
11,900.00	89.90	180.39	7,693.69	-4,209.91	147.94	4,208.80	0.00	0.00	0.00	0.00
12,000.00	89.90	180.39	7,693.87	-4,309.91	147.26	4,308.80	0.00	0.00	0.00	0.00
12,100.00	89.90	180.39	7,694.05	-4,409.91	146.57	4,408.80	0.00	0.00	0.00	0.00
12,200.00	89.90	180.39	7,694.22	-4,509.90	145.89	4,508.80	0.00	0.00	0.00	0.00
12,300.00	89.90	180.39	7,694.40	-4,609.90	145.20	4,608.80	0.00	0.00	0.00	0.00
12,400.00	89.90	180.39	7,694.58	-4,709.90	144.52	4,708.80	0.00	0.00	0.00	0.00
12,500.00	89.90	180.39	7,694.76	-4,809.90	143.83	4,808.80	0.00	0.00	0.00	0.00
12,600.00	89.90	180.39	7,694.93	-4,909.89	143.14	4,908.80	0.00	0.00	0.00	0.00
12,700.00	89.90	180.39	7,695.11	-5,009.89	142.46	5,008.80	0.00	0.00	0.00	0.00
12,800.00	89.90	180.39	7,695.29	-5,109.89	141.77	5,108.80	0.00	0.00	0.00	0.00
12,900.00	89.90	180.39	7,695.46	-5,209.89	141.09	5,208.80	0.00	0.00	0.00	0.00
13,000.00	89.90	180.39	7,695.64	-5,309.88	140.40	5,308.80	0.00	0.00	0.00	0.00
13,100.00	89.90	180.39	7,695.82	-5,409.88	139.72	5,408.80	0.00	0.00	0.00	0.00
13,200.00	89.90	180.39	7,696.00	-5,509.88	139.03	5,508.80	0.00	0.00	0.00	0.00
13,300.00	89.90	180.39	7,696.17	-5,609.88	138.34	5,608.80	0.00	0.00	0.00	0.00
13,400.00	89.90	180.39	7,696.35	-5,709.87	137.66	5,708.79	0.00	0.00	0.00	0.00
13,500.00	89.90	180.39	7,696.53	-5,809.87	136.97	5,808.79	0.00	0.00	0.00	0.00
13,600.00	89.90	180.39	7,696.71	-5,909.87	136.29	5,908.79	0.00	0.00	0.00	0.00
13,700.00	89.90	180.39	7,696.88	-6,009.87	135.60	6,008.79	0.00	0.00	0.00	0.00
13,766.16	89.90	180.39	7,697.00	-6,076.02	135.15	6,074.95	0.00	0.00	0.00	0.00

TD Well @ 13766.16 ft - HUNZIKER 27C-4HZ\_BHL

**Plan Report for HUNZIKER 27C-4HZ - Rev A0 Permit****Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	Tie-On to Surface @ 0.00 ft
4,706.30	4,706.30	0.00	0.00	Begin Nudge @ 4706.30 ft
5,306.30	5,301.92	52.76	33.69	End Nudge @ 5306.30 ft
6,301.30	6,275.18	227.11	145.04	Begin Drop @ 6301.30 ft
6,901.30	6,870.80	279.88	178.73	End Drop @ 6901.30 ft
6,901.30	6,870.80	279.88	178.73	Set 7" Casing @ 6901.30 ft
7,001.30	6,970.80	279.88	178.73	KOP @ 7001.30 ft
7,500.00	7,430.17	113.16	177.59	DLS = 8°/100 ft
8,125.03	7,687.00	-435.04	173.83	End Build @ 8125.03 ft
13,766.16	7,697.00	-6,076.02	135.15	TD Well @ 13766.16 ft

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.39	Slot	0.00	0.00	0.00

**Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	8,125.03	Rev A0 Permit	MWD
8,125.03	13,766.16	Rev A0 Permit	MWD

**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,058.00	1,058.00	9 5/8"	9-5/8	13-1/2
8,125.03	7,687.00	7"	7	8-3/4

**Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,158.00	4,158.00	Parkman			
4,528.00	4,528.00	Sussex			
7,356.93	7,312.00	SSPG			
7,445.42	7,387.00	NBRR			
7,528.95	7,452.00	N470_B_CK			
7,654.27	7,537.00	N700_C_CK			
7,918.27	7,657.00	FRHS			
8,006.48	7,677.00	CDLL			
8,125.49	7,687.00	Landing Target (Heel)			
13,766.16	7,697.00	Total Depth (Toe)			

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**Plan Report for HUNZIKER 27C-4HZ - Rev A0 Permit**

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***Targets associated with this wellbore***

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
HUNZIKER 27C-4HZ_SEC	0.00	0.00	0.00	Polygon
HUNZIKER 27C-4HZ_LD	0.00	0.00	0.00	Polygon
HUNZIKER 27C-4HZ_SHL	0.00	0.00	0.00	Point
HUNZIKER 27C-4HZ_BHL	7,697.00	-6,076.02	135.15	Point

**Directional Difficulty Index**

Average Dogleg over Survey:	0.83 °/100usft	Maximum Dogleg over Survey:	8.00 °/100usft at 8,125.03 usft
Net Tortousity applicable to Plans:	0.83 °/100usft	Directional Difficulty Index:	6.233

**Audit Info**

**North Reference Sheet for Sec. 28-T2N-R67W - HUNZIKER 27C-4HZ - 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' @ 5067.00usft (Drilling Rig). Northing and Easting are relative to HUNZIKER 27C-4HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.50°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996014

Grid Coordinates of Well: 1,281,033.49 usft N, 3,170,040.65 usft E

Geographical Coordinates of Well: 40° 06' 11.62" N, 104° 53' 31.63" W

Grid Convergence at Surface is: 0.39°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,766.16usft the Bottom Hole Displacement is 6,077.52usft in the Direction of 178.73° ( True).

Magnetic Convergence at surface is: -8.17° (24 September 2014, BGGM2014)

Magnetic Model: BGGM2014  
 Date: 24-Sep-14  
 Declination: 8.56°  
 Inclination/Dip: 66.67°  
 Field Strength: 52509

Grid North is 0.39° East of True North (Grid Convergence)  
 Magnetic North is 8.56° East of True North (Magnetic Declination)  
 Magnetic North is 8.17° East of Grid North (Magnetic Convergence)

To convert a True Direction to a Grid Direction, Subtract 0.39°  
 To convert a Magnetic Direction to a True Direction, Add 8.56° East  
 To convert a Magnetic Direction to a Grid Direction, Add 8.17°