

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)  
Sec. 24-T3N-R68W  
BENSON FARMS 12N-23HZ

## Plan A

Plan: Rev A0 Permit

## Sperry Drilling Services

## Proposal Report

18 February, 2014

Well Coordinates: 1,319,825.78 N, 3,150,661.58 E (40° 12' 36.22" N, 104° 57' 37.99" W)

Ground Level: 4,957.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well BENSON FARMS 12N-23HZ

RKB = 17' @ 4974.00usft (Drilling Rig)

N

True

Dec-Deg - API - US Survey Feet - Custom

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
Site: Sec. 24-T3N-R68W  
Well: BENSON FARMS 12N-23HZ  
Wellbore: Plan A  
Design: Rev A0 Permit

# Anadarko Petroleum Corp.

**HALLIBURTON**  
Sperry Drilling

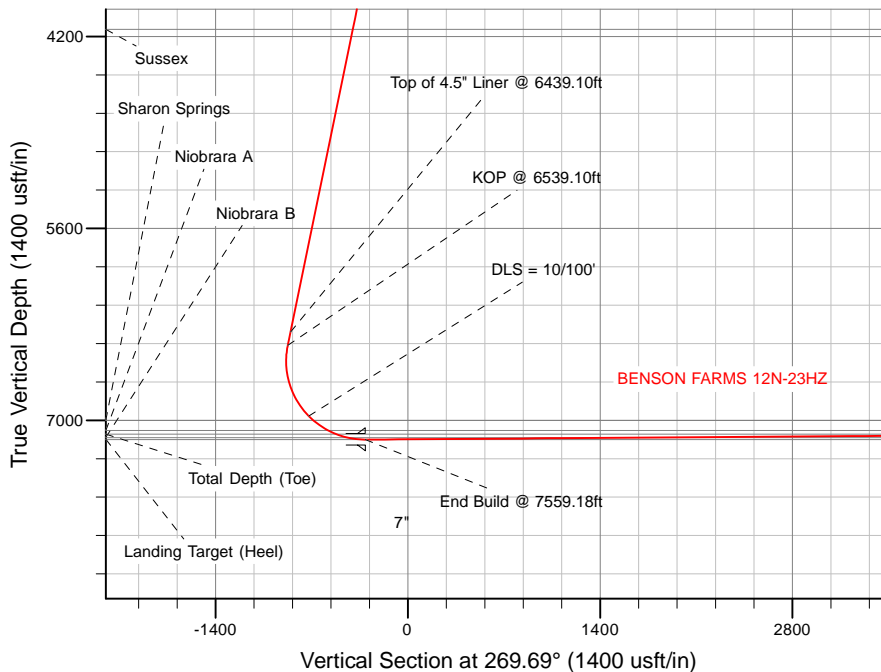
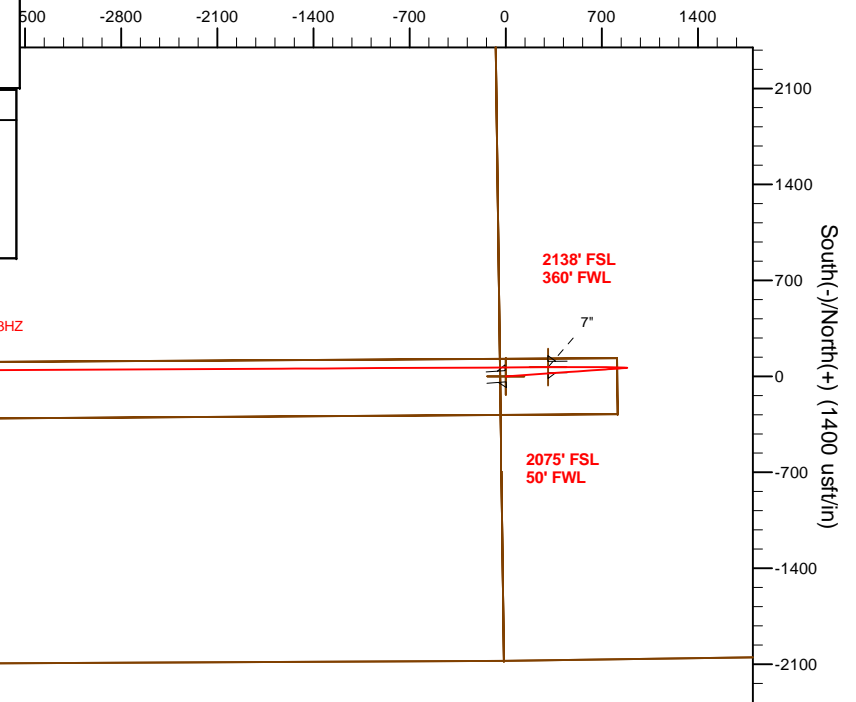
## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1900.00	0.00	0.00	1900.00	0.00	0.00	0.00	0.00	0.00	
3	2481.05	11.62	86.01	2477.07	4.08	58.58	2.00	86.01	-58.60	
4	6539.10	11.62	86.01	6451.94	60.90	874.05	0.00	0.00	-874.36	
5	7559.18	90.41	269.69	7140.00	67.04	308.63	10.00	-176.24	-308.99	BENSON FARMS 12N-23HZ_CP
6	13127.57	90.41	269.69	7100.00	37.36	-5259.54	0.00	0.00	5259.26	BENSON FARMS 12N-23HZ_BHL

## WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
BENSON FARMS 12N-23HZ_LD	0.00	0.00	0.00	40° 12' 36.219 N	104° 57' 37.991 W	Polygon
BENSON FARMS 12N-23HZ_SEC	0.00	0.00	0.00	40° 12' 36.219 N	104° 57' 37.991 W	Polygon
BENSON FARMS 12N-23HZ_SHL	0.00	0.00	0.00	40° 12' 36.219 N	104° 57' 37.991 W	Polygon
BENSON FARMS 12N-23HZ_BHL	7100.00	37.36	-5259.54	40° 12' 36.583 N	104° 58' 45.782 W	Point
BENSON FARMS 12N-23HZ_CP	7140.00	67.04	308.63	40° 12' 36.882 N	104° 57' 34.013 W	Point

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



TVD MD

6353.99 6439.10 Top of 4.5" Liner @ 6439.10ft  
6451.94 6539.10 KOP @ 6539.10ft

WELL DETAILS: BENSON FARMS 12N-23HZ

Ground Level: 4957.00

RKB = 17' @ 4974.00usft (Drilling Rig)

Plan: Rev A0 Permit (BENSON FARMS 12N-23HZ/Plan A)

Created By: Clint Eshelman Date: 2/18/2014  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

**Plan Report for BENSON FARMS 12N-23HZ - 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>BENSON FARMS 12N-23HZ_SHL - BENSON FARMS 12N-23HZ_LD - BENSON FARMS 12N-23HZ_SEC</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
1,056.00	0.00	0.00	1,056.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Marker</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
1,106.00	0.00	0.00	1,106.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>										
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
<b>Begin Nudge @ 1900.00ft</b>										
2,000.00	2.00	86.01	1,999.98	0.12	1.74	-1.74	2.00	2.00	0.00	86.01
2,100.00	4.00	86.01	2,099.84	0.49	6.96	-6.96	2.00	2.00	0.00	0.00
2,200.00	6.00	86.01	2,199.45	1.09	15.66	-15.66	2.00	2.00	0.00	0.00
2,300.00	8.00	86.01	2,298.70	1.94	27.81	-27.82	2.00	2.00	0.00	0.00
2,400.00	10.00	86.01	2,397.47	3.03	43.42	-43.43	2.00	2.00	0.00	0.00
2,481.05	11.62	86.01	2,477.07	4.08	58.58	-58.60	2.00	2.00	0.00	0.00
<b>End Nudge @ 2481.05ft</b>										
2,500.00	11.62	86.01	2,495.64	4.35	62.39	-62.41	0.00	0.00	0.00	0.00
2,600.00	11.62	86.01	2,593.59	5.75	82.48	-82.51	0.00	0.00	0.00	0.00
2,700.00	11.62	86.01	2,691.54	7.15	102.58	-102.62	0.00	0.00	0.00	0.00
2,800.00	11.62	86.01	2,789.49	8.55	122.67	-122.72	0.00	0.00	0.00	0.00
2,900.00	11.62	86.01	2,887.44	9.95	142.77	-142.82	0.00	0.00	0.00	0.00
3,000.00	11.62	86.01	2,985.39	11.35	162.86	-162.92	0.00	0.00	0.00	0.00
3,100.00	11.62	86.01	3,083.34	12.75	182.96	-183.03	0.00	0.00	0.00	0.00
3,200.00	11.62	86.01	3,181.29	14.15	203.05	-203.13	0.00	0.00	0.00	0.00
3,300.00	11.62	86.01	3,279.24	15.55	223.15	-223.23	0.00	0.00	0.00	0.00
3,400.00	11.62	86.01	3,377.19	16.95	243.24	-243.33	0.00	0.00	0.00	0.00
3,500.00	11.62	86.01	3,475.14	18.35	263.34	-263.44	0.00	0.00	0.00	0.00
3,600.00	11.62	86.01	3,573.09	19.75	283.43	-283.54	0.00	0.00	0.00	0.00
3,700.00	11.62	86.01	3,671.04	21.15	303.53	-303.64	0.00	0.00	0.00	0.00
3,716.30	11.62	86.01	3,687.00	21.38	306.80	-306.92	0.00	0.00	0.00	0.00
<b>Parkman</b>										
3,800.00	11.62	86.01	3,768.99	22.55	323.62	-323.74	0.00	0.00	0.00	0.00
3,900.00	11.62	86.01	3,866.94	23.95	343.72	-343.84	0.00	0.00	0.00	0.00
4,000.00	11.62	86.01	3,964.89	25.35	363.81	-363.95	0.00	0.00	0.00	0.00
4,100.00	11.62	86.01	4,062.84	26.75	383.91	-384.05	0.00	0.00	0.00	0.00
4,185.92	11.62	86.01	4,147.00	27.95	401.18	-401.32	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,200.00	11.62	86.01	4,160.79	28.15	404.00	-404.15	0.00	0.00	0.00	0.00
4,300.00	11.62	86.01	4,258.74	29.55	424.10	-424.25	0.00	0.00	0.00	0.00
4,400.00	11.62	86.01	4,356.69	30.95	444.19	-444.36	0.00	0.00	0.00	0.00

**Plan Report for BENSON FARMS 12N-23HZ - 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 (°)
4,500.00	11.62	86.01	4,454.64	32.35	464.29	-464.46	0.00	0.00	0.00	0.00
4,600.00	11.62	86.01	4,552.59	33.75	484.38	-484.56	0.00	0.00	0.00	0.00
4,700.00	11.62	86.01	4,650.54	35.15	504.48	-504.66	0.00	0.00	0.00	0.00
4,800.00	11.62	86.01	4,748.49	36.55	524.57	-524.76	0.00	0.00	0.00	0.00
4,900.00	11.62	86.01	4,846.44	37.95	544.67	-544.87	0.00	0.00	0.00	0.00
5,000.00	11.62	86.01	4,944.39	39.35	564.76	-564.97	0.00	0.00	0.00	0.00
5,100.00	11.62	86.01	5,042.34	40.75	584.86	-585.07	0.00	0.00	0.00	0.00
5,200.00	11.62	86.01	5,140.29	42.15	604.95	-605.17	0.00	0.00	0.00	0.00
5,300.00	11.62	86.01	5,238.24	43.55	625.05	-625.28	0.00	0.00	0.00	0.00
5,400.00	11.62	86.01	5,336.19	44.95	645.14	-645.38	0.00	0.00	0.00	0.00
5,500.00	11.62	86.01	5,434.14	46.35	665.24	-665.48	0.00	0.00	0.00	0.00
5,600.00	11.62	86.01	5,532.09	47.75	685.33	-685.58	0.00	0.00	0.00	0.00
5,700.00	11.62	86.01	5,630.04	49.16	705.43	-705.69	0.00	0.00	0.00	0.00
5,800.00	11.62	86.01	5,727.99	50.56	725.52	-725.79	0.00	0.00	0.00	0.00
5,900.00	11.62	86.01	5,825.94	51.96	745.62	-745.89	0.00	0.00	0.00	0.00
6,000.00	11.62	86.01	5,923.89	53.36	765.71	-765.99	0.00	0.00	0.00	0.00
6,100.00	11.62	86.01	6,021.84	54.76	785.81	-786.09	0.00	0.00	0.00	0.00
6,200.00	11.62	86.01	6,119.79	56.16	805.90	-806.20	0.00	0.00	0.00	0.00
6,300.00	11.62	86.01	6,217.74	57.56	826.00	-826.30	0.00	0.00	0.00	0.00
6,400.00	11.62	86.01	6,315.69	58.96	846.09	-846.40	0.00	0.00	0.00	0.00
6,439.10	11.62	86.01	6,353.99	59.50	853.95	-854.26	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6439.10ft</b>										
6,500.00	11.62	86.01	6,413.64	60.36	866.19	-866.50	0.00	0.00	0.00	0.00
6,539.10	11.62	86.01	6,451.94	60.90	874.05	-874.36	0.00	0.00	0.00	0.00
<b>KOP @ 6539.10ft</b>										
6,600.00	5.56	81.89	6,512.13	61.75	883.09	-883.42	10.00	-9.96	-6.77	-176.24
6,700.00	4.56	279.25	6,611.99	63.07	883.97	-884.30	10.00	-1.00	-162.64	-172.16
6,800.00	14.51	272.63	6,710.49	64.29	867.49	-867.83	10.00	9.96	-6.62	-9.58
6,900.00	24.50	271.36	6,804.63	65.36	834.16	-834.50	10.00	9.99	-1.27	-3.02
7,000.00	34.50	270.80	6,891.55	66.25	784.98	-785.33	10.00	10.00	-0.56	-1.83
7,100.00	44.50	270.47	6,968.62	66.94	721.46	-721.81	10.00	10.00	-0.33	-1.34
<b>DLS = 10/100'</b>										
7,145.85	49.08	270.36	7,000.00	67.18	688.05	-688.40	10.00	10.00	-0.25	-1.08
<b>Sharon Springs</b>										
7,200.00	54.50	270.24	7,033.48	67.40	645.52	-645.88	10.00	10.00	-0.21	-1.00
7,275.16	62.01	270.10	7,073.00	67.58	581.65	-582.00	10.00	10.00	-0.18	-0.93
<b>Niobrara A</b>										
7,300.00	64.50	270.06	7,084.18	67.62	559.47	-559.83	10.00	10.00	-0.17	-0.86
7,400.00	74.49	269.91	7,119.16	67.59	465.93	-466.28	10.00	10.00	-0.15	-0.84
7,428.07	77.30	269.87	7,126.00	67.54	438.70	-439.06	10.00	10.00	-0.14	-0.79
<b>Niobrara B</b>										
7,500.00	84.49	269.77	7,137.37	67.32	367.73	-368.09	10.00	10.00	-0.14	-0.78
7,559.18	90.41	269.69	7,140.00	67.04	308.63	-308.99	10.00	10.00	-0.13	-0.76
<b>End Build @ 7559.18ft - Landing Target (Heel) - 7" - BENSON FARMS 12N-23HZ_CP</b>										
7,600.00	90.41	269.69	7,139.71	66.82	267.81	-268.17	0.00	0.00	0.00	-0.76
7,700.00	90.41	269.69	7,138.99	66.29	167.82	-168.17	0.00	0.00	0.00	0.00
7,800.00	90.41	269.69	7,138.27	65.76	67.82	-68.18	0.00	0.00	0.00	0.00
7,900.00	90.41	269.69	7,137.55	65.22	-32.17	31.82	0.00	0.00	0.00	0.00
8,000.00	90.41	269.69	7,136.83	64.69	-132.17	131.82	0.00	0.00	0.00	0.00
8,100.00	90.41	269.69	7,136.12	64.16	-232.17	231.82	0.00	0.00	0.00	0.00
8,200.00	90.41	269.69	7,135.40	63.63	-332.16	331.81	0.00	0.00	0.00	0.00
8,300.00	90.41	269.69	7,134.68	63.09	-432.16	431.81	0.00	0.00	0.00	0.00
8,400.00	90.41	269.69	7,133.96	62.56	-532.15	531.81	0.00	0.00	0.00	0.00
8,500.00	90.41	269.69	7,133.24	62.03	-632.15	631.81	0.00	0.00	0.00	0.00
8,600.00	90.41	269.69	7,132.52	61.49	-732.15	731.80	0.00	0.00	0.00	0.00
8,700.00	90.41	269.69	7,131.81	60.96	-832.14	831.80	0.00	0.00	0.00	0.00
8,800.00	90.41	269.69	7,131.09	60.43	-932.14	931.80	0.00	0.00	0.00	0.00
8,900.00	90.41	269.69	7,130.37	59.89	-1,032.13	1,031.80	0.00	0.00	0.00	0.00
9,000.00	90.41	269.69	7,129.65	59.36	-1,132.13	1,131.79	0.00	0.00	0.00	0.00

**Plan Report for BENSON FARMS 12N-23HZ - 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 (°)
9,100.00	90.41	269.69	7,128.93	58.83	-1,232.13	1,231.79	0.00	0.00	0.00	0.00
9,200.00	90.41	269.69	7,128.21	58.30	-1,332.12	1,331.79	0.00	0.00	0.00	0.00
9,300.00	90.41	269.69	7,127.50	57.76	-1,432.12	1,431.78	0.00	0.00	0.00	0.00
9,400.00	90.41	269.69	7,126.78	57.23	-1,532.11	1,531.78	0.00	0.00	0.00	0.00
9,500.00	90.41	269.69	7,126.06	56.70	-1,632.11	1,631.78	0.00	0.00	0.00	0.00
9,600.00	90.41	269.69	7,125.34	56.16	-1,732.11	1,731.78	0.00	0.00	0.00	0.00
9,700.00	90.41	269.69	7,124.62	55.63	-1,832.10	1,831.77	0.00	0.00	0.00	0.00
9,800.00	90.41	269.69	7,123.90	55.10	-1,932.10	1,931.77	0.00	0.00	0.00	0.00
9,900.00	90.41	269.69	7,123.18	54.56	-2,032.09	2,031.77	0.00	0.00	0.00	0.00
10,000.00	90.41	269.69	7,122.47	54.03	-2,132.09	2,131.77	0.00	0.00	0.00	0.00
10,100.00	90.41	269.69	7,121.75	53.50	-2,232.09	2,231.76	0.00	0.00	0.00	0.00
10,200.00	90.41	269.69	7,121.03	52.97	-2,332.08	2,331.76	0.00	0.00	0.00	0.00
10,300.00	90.41	269.69	7,120.31	52.43	-2,432.08	2,431.76	0.00	0.00	0.00	0.00
10,400.00	90.41	269.69	7,119.59	51.90	-2,532.07	2,531.76	0.00	0.00	0.00	0.00
10,500.00	90.41	269.69	7,118.87	51.37	-2,632.07	2,631.75	0.00	0.00	0.00	0.00
10,600.00	90.41	269.69	7,118.16	50.83	-2,732.07	2,731.75	0.00	0.00	0.00	0.00
10,700.00	90.41	269.69	7,117.44	50.30	-2,832.06	2,831.75	0.00	0.00	0.00	0.00
10,800.00	90.41	269.69	7,116.72	49.77	-2,932.06	2,931.75	0.00	0.00	0.00	0.00
10,900.00	90.41	269.69	7,116.00	49.23	-3,032.05	3,031.74	0.00	0.00	0.00	0.00
11,000.00	90.41	269.69	7,115.28	48.70	-3,132.05	3,131.74	0.00	0.00	0.00	0.00
11,100.00	90.41	269.69	7,114.56	48.17	-3,232.05	3,231.74	0.00	0.00	0.00	0.00
11,200.00	90.41	269.69	7,113.85	47.64	-3,332.04	3,331.74	0.00	0.00	0.00	0.00
11,300.00	90.41	269.69	7,113.13	47.10	-3,432.04	3,431.73	0.00	0.00	0.00	0.00
11,400.00	90.41	269.69	7,112.41	46.57	-3,532.03	3,531.73	0.00	0.00	0.00	0.00
11,500.00	90.41	269.69	7,111.69	46.04	-3,632.03	3,631.73	0.00	0.00	0.00	0.00
11,600.00	90.41	269.69	7,110.97	45.50	-3,732.03	3,731.73	0.00	0.00	0.00	0.00
11,700.00	90.41	269.69	7,110.25	44.97	-3,832.02	3,831.72	0.00	0.00	0.00	0.00
11,800.00	90.41	269.69	7,109.54	44.44	-3,932.02	3,931.72	0.00	0.00	0.00	0.00
11,900.00	90.41	269.69	7,108.82	43.90	-4,032.01	4,031.72	0.00	0.00	0.00	0.00
12,000.00	90.41	269.69	7,108.10	43.37	-4,132.01	4,131.72	0.00	0.00	0.00	0.00
12,100.00	90.41	269.69	7,107.38	42.84	-4,232.01	4,231.71	0.00	0.00	0.00	0.00
12,200.00	90.41	269.69	7,106.66	42.31	-4,332.00	4,331.71	0.00	0.00	0.00	0.00
12,300.00	90.41	269.69	7,105.94	41.77	-4,432.00	4,431.71	0.00	0.00	0.00	0.00
12,400.00	90.41	269.69	7,105.23	41.24	-4,531.99	4,531.70	0.00	0.00	0.00	0.00
12,500.00	90.41	269.69	7,104.51	40.71	-4,631.99	4,631.70	0.00	0.00	0.00	0.00
12,600.00	90.41	269.69	7,103.79	40.17	-4,731.99	4,731.70	0.00	0.00	0.00	0.00
12,700.00	90.41	269.69	7,103.07	39.64	-4,831.98	4,831.70	0.00	0.00	0.00	0.00
12,800.00	90.41	269.69	7,102.35	39.11	-4,931.98	4,931.69	0.00	0.00	0.00	0.00
12,900.00	90.41	269.69	7,101.63	38.57	-5,031.97	5,031.69	0.00	0.00	0.00	0.00
13,000.00	90.41	269.69	7,100.92	38.04	-5,131.97	5,131.69	0.00	0.00	0.00	0.00
13,100.00	90.41	269.69	7,100.20	37.51	-5,231.97	5,231.69	0.00	0.00	0.00	0.00
13,127.57	90.41	269.69	7,100.00	37.36	-5,259.54	5,259.26	0.00	0.00	0.00	0.00

TD Well @ 13127.57ft - Total Depth (Toe) - BENSON FARMS 12N-23HZ\_BHL

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,900.00	1,900.00	0.00	0.00	Begin Nudge @ 1900.00ft
2,481.05	2,477.07	4.08	58.58	End Nudge @ 2481.05ft
6,439.10	6,353.99	59.50	853.95	Top of 4.5" Liner @ 6439.10ft
6,539.10	6,451.94	60.90	874.05	KOP @ 6539.10ft
7,100.00	6,968.62	66.94	721.46	DLS = 10/100'
7,559.18	7,140.00	67.04	308.63	End Build @ 7559.18ft
13,127.57	7,100.00	37.36	-5,259.54	TD Well @ 13127.57ft

## Plan Report for BENSON FARMS 12N-23HZ - Rev A0 Permit

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/-S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	269.69	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,559.18	Rev A0 Permit	MWD
7,559.18	13,127.57	Rev A0 Permit	MWD

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,106.00	1,106.00	9 5/8"	9-5/8	13-1/2
7,559.18	7,140.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,056.00	1,056.00	Fox Hills Marker		0.00	
3,716.30	3,687.00	Parkman		0.00	
4,185.92	4,147.00	Sussex		0.00	
7,145.85	7,000.00	Sharon Springs		0.00	
7,275.16	7,073.00	Niobrara A		0.00	
7,428.07	7,126.00	Niobrara B		0.00	
7,559.18	7,140.00	Landing Target (Heel)		0.00	
13,127.57	7,100.00	Total Depth (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
BENSON FARMS 12N-23HZ_SHL	0.00	0.00	0.00	Point
BENSON FARMS 12N-23HZ_LD	0.00	0.00	0.00	Polygon
BENSON FARMS 12N-23HZ_SEC	0.00	0.00	0.00	Point
BENSON FARMS 12N-23HZ_BHL	7,100.00	37.36	-5,259.54	Point
BENSON FARMS 12N-23HZ_CP	7,140.00	67.04	308.63	Point

Directional Difficulty Index

Average Dogleg over Survey:	0.00 °/100usft	Maximum Dogleg over Survey:	0.00 °/100usft at 0.00 usft
Net Tortousity applicable to Plans:	0.00 °/100usft	Directional Difficulty Index:	6.268

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**Plan Report for BENSON FARMS 12N-23HZ - Rev A0 Permit**

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*Audit Info*

North Reference Sheet for Sec. 24-T3N-R68W - BENSON FARMS 12N-23HZ - Plan

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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' @ 4974.00usft (Drilling Rig). Northing and Easting are relative to BENSON FARMS 12N-23HZ

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: 0.99995710

Grid Coordinates of Well: 1,319,825.78 usft N, 3,150,661.58 usft E

Geographical Coordinates of Well: 40° 12' 36.22" N, 104° 57' 37.99" W

Grid Convergence at Surface is: 0.35°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,127.57usft the Bottom Hole Displacement is 5,259.67usft in the Direction of 270.41° ( True).

Magnetic Convergence at surface is: -8.29° (12 February 2014, , BGGM2013)

