

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 34-T2N-R65W

Sparboe 24C-3HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

## Sperry Drilling Services

# Proposal Report

03 August, 2012

Well Coordinates: 1,280,971.98 N, 3,238,973.63 E (40° 06' 05.40" N, 104° 38' 44.54" W)

Ground Level: 4,977.00 ft

Local Coordinate Origin:	Centered on Well Sparboe 24C-3HZ
Viewing Datum:	RKB=17ft @ 4994.00ft (Drilling Rig)
TVDs to System:	N
North Reference:	True
Unit System:	API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
 Site: Sec. 34-T2N-R65W  
 Well: Sparboe 24C-3HZ  
 Wellbore: Plan A Rev 0  
 Design: Plan A Rev 0 Permit

# Anadarko Petroleum Corp.

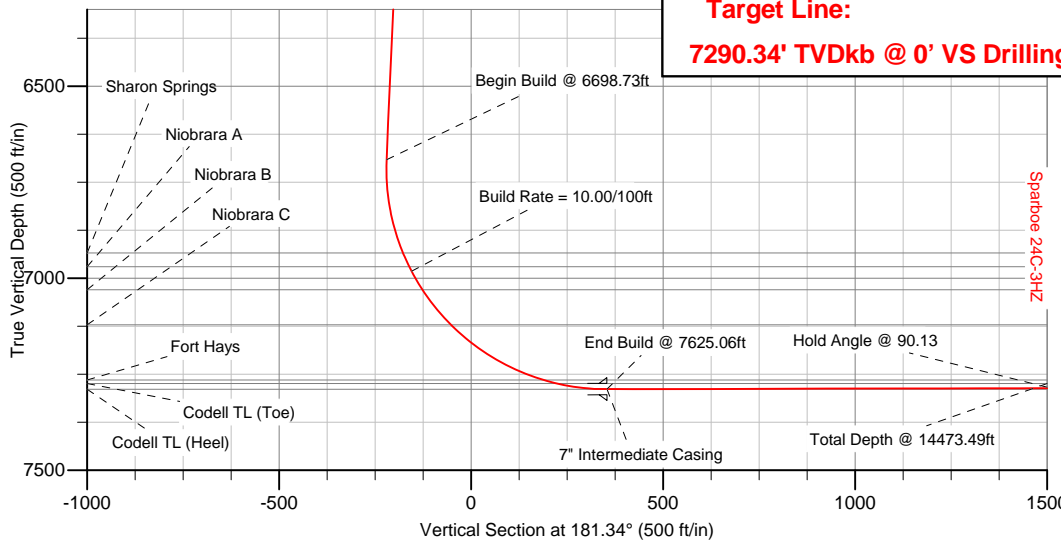


### SECTION DETAILS

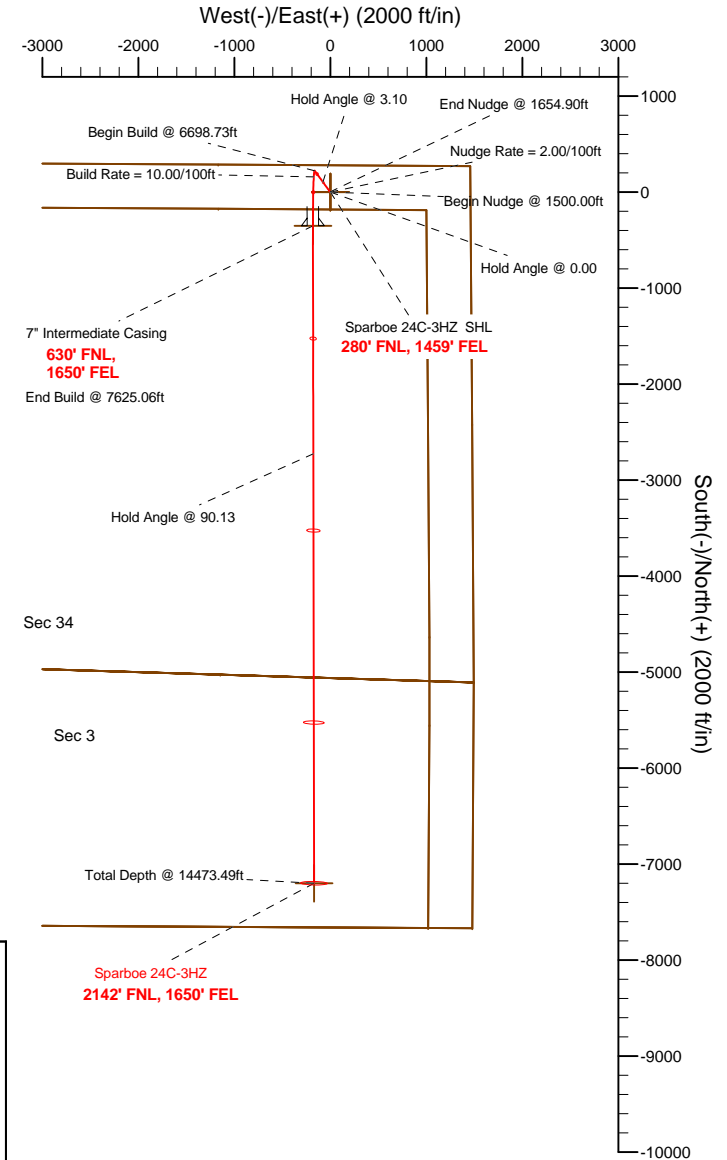
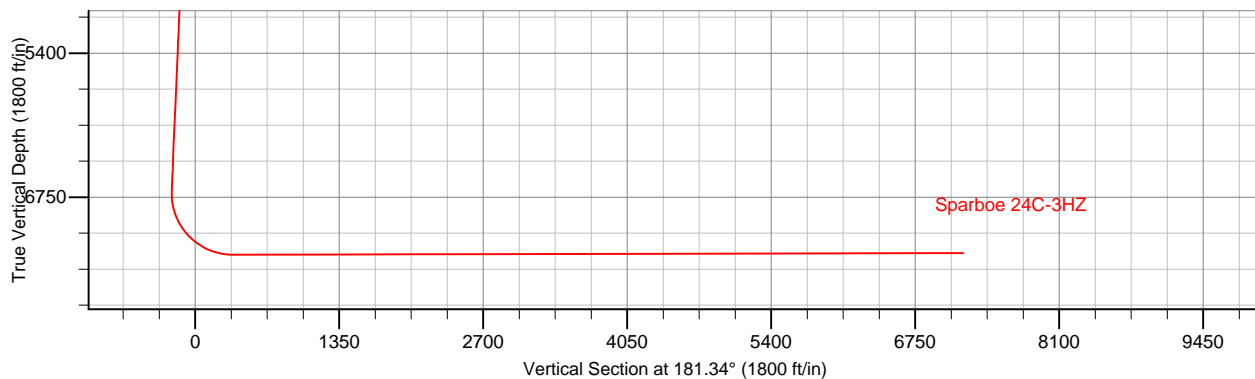
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	
3	1654.90	3.10	323.92	1654.82	3.38	-2.47	2.00	323.92	-3.33	
4	6698.73	3.10	323.92	6691.29	223.70	-162.98	0.00	0.00	-219.82	
5	7625.06	90.13	179.90	7289.00	-350.00	-181.00	10.00	-143.98	354.15	Sparboe 24C-3HZ_Casing Point
6	14473.49	90.13	179.90	7274.00	-7198.41	-168.74	0.00	0.00	7200.39	Sparboe 24C-3HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Sparboe 24C-3HZ_Sec 34/3 Line 0.00	0.00	0.00	0.00	40.101500	-104.645706	Polygon
Sparboe 24C-3HZ_Section Lines 0.00	0.00	0.00	0.00	40.101500	-104.645706	Polygon
Sparboe 24C-3HZ_Setback Lines 0.00	0.00	0.00	0.00	40.101500	-104.645706	Polygon
Sparboe 24C-3HZ_SHL 0.00	0.00	0.00	0.00	40.101500	-104.645706	Point
Sparboe 24C-3HZ_BHL 7274.00	-7198.41	-168.74	40.081740	-104.646309	Point	
Sparboe 24C-3HZ_Casing Point 7289.00	-350.00	-181.00	40.100539	-104.646353	Point	



**Target Line:**  
**7290.34' TVDkb @ 0° VS Drilling 90.13°**



WELL DETAILS: Sparboe 24C-3HZ	
Ground Level: 4977.00	RKB=17ft @ 4994.00ft (Drilling Rig)
Plan: Plan A Rev 0 Permit (Sparboe 24C-3HZ/Plan A Rev 0)	
Created By: Fred Hartmann	Date: 08/03/2012
Reviewed: _____	Date: _____

**Plan Report for Sparboe 24C-3HZ - Plan A Rev 0 Permit**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	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>Sparboe 24C-3HZ_SHL - Sparboe 24C-3HZ_Sec 34/3 Line - Sparboe 24C-3HZ_Section Lines - Sparboe 24C-3HZ_Setback 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
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
747.00	0.00	0.00	747.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills</b>										
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Hold Angle @ 0.00</b>										
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
<b>Begin Nudge @ 1500.00ft</b>										
1,600.00	2.00	323.92	1,599.98	1.41	-1.03	-1.39	2.00	2.00	0.00	323.92
<b>Nudge Rate = 2.00/100ft</b>										
1,654.90	3.10	323.92	1,654.82	3.38	-2.47	-3.33	2.00	2.00	0.00	0.00
<b>End Nudge @ 1654.90ft</b>										
1,700.00	3.10	323.92	1,699.86	5.35	-3.90	-5.26	0.00	0.00	0.00	0.00
1,800.00	3.10	323.92	1,799.71	9.72	-7.08	-9.55	0.00	0.00	0.00	0.00
1,900.00	3.10	323.92	1,899.57	14.09	-10.27	-13.85	0.00	0.00	0.00	0.00
2,000.00	3.10	323.92	1,999.42	18.46	-13.45	-18.14	0.00	0.00	0.00	0.00
2,100.00	3.10	323.92	2,099.27	22.83	-16.63	-22.43	0.00	0.00	0.00	0.00
2,200.00	3.10	323.92	2,199.13	27.19	-19.81	-26.72	0.00	0.00	0.00	0.00
2,300.00	3.10	323.92	2,298.98	31.56	-23.00	-31.01	0.00	0.00	0.00	0.00
2,400.00	3.10	323.92	2,398.84	35.93	-26.18	-35.31	0.00	0.00	0.00	0.00
2,500.00	3.10	323.92	2,498.69	40.30	-29.36	-39.60	0.00	0.00	0.00	0.00
2,600.00	3.10	323.92	2,598.54	44.67	-32.54	-43.89	0.00	0.00	0.00	0.00
2,700.00	3.10	323.92	2,698.40	49.03	-35.73	-48.18	0.00	0.00	0.00	0.00
2,800.00	3.10	323.92	2,798.25	53.40	-38.91	-52.48	0.00	0.00	0.00	0.00
2,900.00	3.10	323.92	2,898.10	57.77	-42.09	-56.77	0.00	0.00	0.00	0.00
3,000.00	3.10	323.92	2,997.96	62.14	-45.27	-61.06	0.00	0.00	0.00	0.00
3,100.00	3.10	323.92	3,097.81	66.51	-48.45	-65.35	0.00	0.00	0.00	0.00
3,200.00	3.10	323.92	3,197.67	70.87	-51.64	-69.64	0.00	0.00	0.00	0.00
3,300.00	3.10	323.92	3,297.52	75.24	-54.82	-73.94	0.00	0.00	0.00	0.00
3,400.00	3.10	323.92	3,397.37	79.61	-58.00	-78.23	0.00	0.00	0.00	0.00
3,500.00	3.10	323.92	3,497.23	83.98	-61.18	-82.52	0.00	0.00	0.00	0.00
3,600.00	3.10	323.92	3,597.08	88.35	-64.37	-86.81	0.00	0.00	0.00	0.00
3,700.00	3.10	323.92	3,696.94	92.71	-67.55	-91.10	0.00	0.00	0.00	0.00
3,800.00	3.10	323.92	3,796.79	97.08	-70.73	-95.40	0.00	0.00	0.00	0.00
3,900.00	3.10	323.92	3,896.64	101.45	-73.91	-99.69	0.00	0.00	0.00	0.00
4,000.00	3.10	323.92	3,996.50	105.82	-77.10	-103.98	0.00	0.00	0.00	0.00
<b>Hold Angle @ 3.10</b>										
4,100.00	3.10	323.92	4,096.35	110.19	-80.28	-108.27	0.00	0.00	0.00	0.00
4,200.00	3.10	323.92	4,196.21	114.55	-83.46	-112.57	0.00	0.00	0.00	0.00
4,300.00	3.10	323.92	4,296.06	118.92	-86.64	-116.86	0.00	0.00	0.00	0.00
4,400.00	3.10	323.92	4,395.91	123.29	-89.83	-121.15	0.00	0.00	0.00	0.00
4,500.00	3.10	323.92	4,495.77	127.66	-93.01	-125.44	0.00	0.00	0.00	0.00
4,600.00	3.10	323.92	4,595.62	132.02	-96.19	-129.73	0.00	0.00	0.00	0.00
4,700.00	3.10	323.92	4,695.47	136.39	-99.37	-134.03	0.00	0.00	0.00	0.00

**Plan Report for Sparboe 24C-3HZ - Plan A Rev 0 Permit**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Tooface Azimuth (°)
4,800.00	3.10	323.92	4,795.33	140.76	-102.56	-138.32	0.00	0.00	0.00	0.00
4,900.00	3.10	323.92	4,895.18	145.13	-105.74	-142.61	0.00	0.00	0.00	0.00
4,997.96	3.10	323.92	4,993.00	149.41	-108.86	-146.82	0.00	0.00	0.00	0.00
<b>Sussex</b>										
5,000.00	3.10	323.92	4,995.04	149.50	-108.92	-146.90	0.00	0.00	0.00	0.00
5,100.00	3.10	323.92	5,094.89	153.86	-112.10	-151.20	0.00	0.00	0.00	0.00
5,200.00	3.10	323.92	5,194.74	158.23	-115.29	-155.49	0.00	0.00	0.00	0.00
5,300.00	3.10	323.92	5,294.60	162.60	-118.47	-159.78	0.00	0.00	0.00	0.00
5,400.00	3.10	323.92	5,394.45	166.97	-121.65	-164.07	0.00	0.00	0.00	0.00
5,500.00	3.10	323.92	5,494.31	171.34	-124.83	-168.36	0.00	0.00	0.00	0.00
5,600.00	3.10	323.92	5,594.16	175.70	-128.02	-172.66	0.00	0.00	0.00	0.00
5,700.00	3.10	323.92	5,694.01	180.07	-131.20	-176.95	0.00	0.00	0.00	0.00
5,800.00	3.10	323.92	5,793.87	184.44	-134.38	-181.24	0.00	0.00	0.00	0.00
5,900.00	3.10	323.92	5,893.72	188.81	-137.56	-185.53	0.00	0.00	0.00	0.00
6,000.00	3.10	323.92	5,993.57	193.18	-140.75	-189.83	0.00	0.00	0.00	0.00
6,100.00	3.10	323.92	6,093.43	197.54	-143.93	-194.12	0.00	0.00	0.00	0.00
6,200.00	3.10	323.92	6,193.28	201.91	-147.11	-198.41	0.00	0.00	0.00	0.00
6,300.00	3.10	323.92	6,293.14	206.28	-150.29	-202.70	0.00	0.00	0.00	0.00
6,400.00	3.10	323.92	6,392.99	210.65	-153.48	-206.99	0.00	0.00	0.00	0.00
6,500.00	3.10	323.92	6,492.84	215.02	-156.66	-211.29	0.00	0.00	0.00	0.00
6,600.00	3.10	323.92	6,592.70	219.38	-159.84	-215.58	0.00	0.00	0.00	0.00
6,698.73	3.10	323.92	6,691.28	223.70	-162.98	-219.82	0.00	0.00	0.00	0.00
<b>Begin Build @ 6698.73ft</b>										
6,700.00	3.00	322.50	6,692.55	223.75	-163.02	-219.87	9.97	-7.99	-112.12	-143.98
6,800.00	7.83	193.26	6,792.27	219.18	-166.19	-215.23	10.00	4.84	-129.24	-142.56
6,900.00	17.71	185.62	6,889.68	197.35	-169.25	-193.33	10.00	9.88	-7.65	-13.48
6,947.19	22.41	184.32	6,934.00	181.23	-170.63	-177.18	10.00	9.96	-2.74	-6.00
<b>Sharon Springs</b>										
6,986.73	26.35	183.58	6,970.00	164.95	-171.74	-160.88	10.00	9.97	-1.88	-4.78
<b>Niobrara A</b>										
7,000.00	27.68	183.38	6,981.82	158.94	-172.11	-154.86	10.00	9.98	-1.54	-4.11
<b>Build Rate = 10.00/100ft</b>										
7,055.91	33.26	182.68	7,030.00	130.64	-173.59	-126.53	10.00	9.98	-1.25	-3.92
<b>Niobrara B</b>										
7,100.00	37.66	182.26	7,065.90	105.09	-174.69	-100.97	10.00	9.98	-0.95	-3.32
7,173.42	44.99	181.72	7,121.00	56.68	-176.36	-52.53	10.00	9.99	-0.73	-2.98
<b>Niobrara C</b>										
7,200.00	47.65	181.56	7,139.36	37.46	-176.91	-33.31	10.00	9.99	-0.61	-2.58
7,300.00	57.64	181.06	7,199.96	-41.90	-178.70	46.08	10.00	9.99	-0.51	-2.46
7,400.00	67.63	180.65	7,245.87	-130.59	-180.01	134.77	10.00	9.99	-0.40	-2.16
7,457.33	73.36	180.45	7,265.00	-184.61	-180.52	188.79	10.00	9.99	-0.36	-1.97
<b>Fort Hays</b>										
7,500.00	77.63	180.30	7,275.69	-225.90	-180.79	230.08	10.00	9.99	-0.34	-1.90
7,600.00	87.62	179.98	7,288.51	-324.95	-181.03	329.10	10.00	9.99	-0.32	-1.86
7,625.06	90.13	179.90	7,289.00	-350.00	-181.00	354.15	10.00	9.99	-0.32	-1.82
<b>End Build @ 7625.06ft - Codell TL (Heel) - 7" Intermediate Casing - Sparboe 24C-3HZ_Casing Point</b>										
7,700.00	90.13	179.90	7,288.84	-424.94	-180.87	429.07	0.00	0.00	0.00	-1.82
7,800.00	90.13	179.90	7,288.62	-524.94	-180.69	529.03	0.00	0.00	0.00	0.00
7,900.00	90.13	179.90	7,288.40	-624.94	-180.51	629.00	0.00	0.00	0.00	0.00
8,000.00	90.13	179.90	7,288.18	-724.94	-180.33	728.97	0.00	0.00	0.00	0.00
8,100.00	90.13	179.90	7,287.96	-824.94	-180.15	828.94	0.00	0.00	0.00	0.00
8,200.00	90.13	179.90	7,287.74	-924.94	-179.97	928.91	0.00	0.00	0.00	0.00
8,300.00	90.13	179.90	7,287.52	-1,024.94	-179.79	1,028.87	0.00	0.00	0.00	0.00
8,400.00	90.13	179.90	7,287.30	-1,124.94	-179.61	1,128.84	0.00	0.00	0.00	0.00
8,500.00	90.13	179.90	7,287.08	-1,224.94	-179.43	1,228.81	0.00	0.00	0.00	0.00
8,600.00	90.13	179.90	7,286.86	-1,324.94	-179.25	1,328.78	0.00	0.00	0.00	0.00
8,700.00	90.13	179.90	7,286.65	-1,424.94	-179.08	1,428.75	0.00	0.00	0.00	0.00
8,800.00	90.13	179.90	7,286.43	-1,524.94	-178.90	1,528.71	0.00	0.00	0.00	0.00
8,900.00	90.13	179.90	7,286.21	-1,624.94	-178.72	1,628.68	0.00	0.00	0.00	0.00

**Plan Report for Sparboe 24C-3HZ - Plan A Rev 0 Permit**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Toolface Azimuth (°)
9,000.00	90.13	179.90	7,285.99	-1,724.94	-178.54	1,728.65	0.00	0.00	0.00	0.00
9,100.00	90.13	179.90	7,285.77	-1,824.94	-178.36	1,828.62	0.00	0.00	0.00	0.00
9,200.00	90.13	179.90	7,285.55	-1,924.94	-178.18	1,928.58	0.00	0.00	0.00	0.00
9,300.00	90.13	179.90	7,285.33	-2,024.94	-178.00	2,028.55	0.00	0.00	0.00	0.00
9,400.00	90.13	179.90	7,285.11	-2,124.94	-177.82	2,128.52	0.00	0.00	0.00	0.00
9,500.00	90.13	179.90	7,284.89	-2,224.94	-177.64	2,228.49	0.00	0.00	0.00	0.00
9,600.00	90.13	179.90	7,284.67	-2,324.94	-177.46	2,328.46	0.00	0.00	0.00	0.00
9,700.00	90.13	179.90	7,284.46	-2,424.94	-177.28	2,428.42	0.00	0.00	0.00	0.00
9,800.00	90.13	179.90	7,284.24	-2,524.94	-177.11	2,528.39	0.00	0.00	0.00	0.00
9,900.00	90.13	179.90	7,284.02	-2,624.94	-176.93	2,628.36	0.00	0.00	0.00	0.00
10,000.00	90.13	179.90	7,283.80	-2,724.93	-176.75	2,728.33	0.00	0.00	0.00	0.00
<b>Hold Angle @ 90.13</b>										
10,100.00	90.13	179.90	7,283.58	-2,824.93	-176.57	2,828.30	0.00	0.00	0.00	0.00
10,200.00	90.13	179.90	7,283.36	-2,924.93	-176.39	2,928.26	0.00	0.00	0.00	0.00
10,300.00	90.13	179.90	7,283.14	-3,024.93	-176.21	3,028.23	0.00	0.00	0.00	0.00
10,400.00	90.13	179.90	7,282.92	-3,124.93	-176.03	3,128.20	0.00	0.00	0.00	0.00
10,500.00	90.13	179.90	7,282.70	-3,224.93	-175.85	3,228.17	0.00	0.00	0.00	0.00
10,600.00	90.13	179.90	7,282.48	-3,324.93	-175.67	3,328.14	0.00	0.00	0.00	0.00
10,700.00	90.13	179.90	7,282.27	-3,424.93	-175.49	3,428.10	0.00	0.00	0.00	0.00
10,800.00	90.13	179.90	7,282.05	-3,524.93	-175.31	3,528.07	0.00	0.00	0.00	0.00
10,900.00	90.13	179.90	7,281.83	-3,624.93	-175.14	3,628.04	0.00	0.00	0.00	0.00
11,000.00	90.13	179.90	7,281.61	-3,724.93	-174.96	3,728.01	0.00	0.00	0.00	0.00
11,100.00	90.13	179.90	7,281.39	-3,824.93	-174.78	3,827.98	0.00	0.00	0.00	0.00
11,200.00	90.13	179.90	7,281.17	-3,924.93	-174.60	3,927.94	0.00	0.00	0.00	0.00
11,300.00	90.13	179.90	7,280.95	-4,024.93	-174.42	4,027.91	0.00	0.00	0.00	0.00
11,400.00	90.13	179.90	7,280.73	-4,124.93	-174.24	4,127.88	0.00	0.00	0.00	0.00
11,500.00	90.13	179.90	7,280.51	-4,224.93	-174.06	4,227.85	0.00	0.00	0.00	0.00
11,600.00	90.13	179.90	7,280.29	-4,324.93	-173.88	4,327.82	0.00	0.00	0.00	0.00
11,700.00	90.13	179.90	7,280.07	-4,424.93	-173.70	4,427.78	0.00	0.00	0.00	0.00
11,800.00	90.13	179.90	7,279.86	-4,524.93	-173.52	4,527.75	0.00	0.00	0.00	0.00
11,900.00	90.13	179.90	7,279.64	-4,624.93	-173.35	4,627.72	0.00	0.00	0.00	0.00
12,000.00	90.13	179.90	7,279.42	-4,724.93	-173.17	4,727.69	0.00	0.00	0.00	0.00
12,100.00	90.13	179.90	7,279.20	-4,824.93	-172.99	4,827.66	0.00	0.00	0.00	0.00
12,200.00	90.13	179.90	7,278.98	-4,924.93	-172.81	4,927.62	0.00	0.00	0.00	0.00
12,300.00	90.13	179.90	7,278.76	-5,024.93	-172.63	5,027.59	0.00	0.00	0.00	0.00
12,400.00	90.13	179.90	7,278.54	-5,124.93	-172.45	5,127.56	0.00	0.00	0.00	0.00
12,500.00	90.13	179.90	7,278.32	-5,224.92	-172.27	5,227.53	0.00	0.00	0.00	0.00
12,600.00	90.13	179.90	7,278.10	-5,324.92	-172.09	5,327.49	0.00	0.00	0.00	0.00
12,700.00	90.13	179.90	7,277.88	-5,424.92	-171.91	5,427.46	0.00	0.00	0.00	0.00
12,800.00	90.13	179.90	7,277.67	-5,524.92	-171.73	5,527.43	0.00	0.00	0.00	0.00
12,900.00	90.13	179.90	7,277.45	-5,624.92	-171.55	5,627.40	0.00	0.00	0.00	0.00
13,000.00	90.13	179.90	7,277.23	-5,724.92	-171.38	5,727.37	0.00	0.00	0.00	0.00
13,100.00	90.13	179.90	7,277.01	-5,824.92	-171.20	5,827.33	0.00	0.00	0.00	0.00
13,200.00	90.13	179.90	7,276.79	-5,924.92	-171.02	5,927.30	0.00	0.00	0.00	0.00
13,300.00	90.13	179.90	7,276.57	-6,024.92	-170.84	6,027.27	0.00	0.00	0.00	0.00
13,400.00	90.13	179.90	7,276.35	-6,124.92	-170.66	6,127.24	0.00	0.00	0.00	0.00
13,500.00	90.13	179.90	7,276.13	-6,224.92	-170.48	6,227.21	0.00	0.00	0.00	0.00
13,600.00	90.13	179.90	7,275.91	-6,324.92	-170.30	6,327.17	0.00	0.00	0.00	0.00
13,700.00	90.13	179.90	7,275.69	-6,424.92	-170.12	6,427.14	0.00	0.00	0.00	0.00
13,800.00	90.13	179.90	7,275.48	-6,524.92	-169.94	6,527.11	0.00	0.00	0.00	0.00
13,900.00	90.13	179.90	7,275.26	-6,624.92	-169.76	6,627.08	0.00	0.00	0.00	0.00
14,000.00	90.13	179.90	7,275.04	-6,724.92	-169.58	6,727.05	0.00	0.00	0.00	0.00
14,100.00	90.13	179.90	7,274.82	-6,824.92	-169.41	6,827.01	0.00	0.00	0.00	0.00
14,200.00	90.13	179.90	7,274.60	-6,924.92	-169.23	6,926.98	0.00	0.00	0.00	0.00
14,300.00	90.13	179.90	7,274.38	-7,024.92	-169.05	7,026.95	0.00	0.00	0.00	0.00
14,400.00	90.13	179.90	7,274.16	-7,124.92	-168.87	7,126.92	0.00	0.00	0.00	0.00
14,473.49	90.13	179.90	7,274.00	-7,198.41	-168.74	7,200.38	0.00	0.00	0.00	0.00
<b>Total Depth @ 14473.49ft - Codell TL (Toe) - Sparboe 24C-3HZ_BHL</b>										

**Plan Report for Sparboe 24C-3HZ - Plan A Rev 0 Permit****Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.00	800.00	0.00	0.00	Hold Angle @ 0.00
1,500.00	1,500.00	0.00	0.00	Begin Nudge @ 1500.00ft
1,600.00	1,599.98	1.41	-1.03	Nudge Rate = 2.00/100ft
1,654.90	1,654.82	3.38	-2.47	End Nudge @ 1654.90ft
4,000.00	3,996.50	105.82	-77.10	Hold Angle @ 3.10
6,698.73	6,691.28	223.70	-162.98	Begin Build @ 6698.73ft
7,000.00	6,981.82	158.94	-172.11	Build Rate = 10.00/100ft
7,625.06	7,289.00	-350.00	-181.00	End Build @ 7625.06ft
10,000.00	7,283.80	-2,724.93	-176.75	Hold Angle @ 90.13
14,473.49	7,274.00	-7,198.41	-168.74	Total Depth @ 14473.49ft

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/_S (ft)	+E/-W (ft)	
Target	Sparboe 24C-3HZ_BHL	181.34	Slot	0.00	0.00	0.00

**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	14,473.49	Plan A Rev 0 Permit	MWD

**Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,625.06	7,289.00	7" Intermediate Casing	7	8-3/4

**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
747.00	747.00	Fox Hills		0.00	
4,997.96	4,993.00	Sussex		0.00	
6,947.19	6,934.00	Sharon Springs		0.00	
6,986.73	6,970.00	Niobrara A		0.00	
7,055.91	7,030.00	Niobrara B		0.00	
7,173.42	7,121.00	Niobrara C		0.00	
7,457.33	7,265.00	Fort Hays		0.00	
7,625.06	7,289.00	Codell TL (Heel)		0.00	
14,473.49	7,274.00	Codell TL (Toe)		0.00	

**Plan Report for Sparboe 24C-3HZ - Plan A Rev 0 Permit**

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*Targets associated with this wellbore*

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Sparboe 24C-3HZ_Casing Point	7,289.00	-350.00	-181.00	Point
Sparboe 24C-3HZ_Setback Lines	0.00	0.00	0.00	Polygon
Sparboe 24C-3HZ_Sec 34/3 Line	0.00	0.00	0.00	Polygon
Sparboe 24C-3HZ_BHL	7,274.00	-7,198.41	-168.74	Point
Sparboe 24C-3HZ_SHL	0.00	0.00	0.00	Point
Sparboe 24C-3HZ_Section Lines	0.00	0.00	0.00	Polygon

**North Reference Sheet for Sec. 34-T2N-R65W - Sparboe 24C-3HZ - Plan A Rev 0**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.  
 Vertical Depths are relative to RKB=17ft @ 4994.00ft (Drilling Rig). Northing and Easting are relative to Sparboe 24C-3HZ  
 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: 3,000,000.000644ft, False Northing: 1,000,000.001308ft, Scale Reduction: 0.99996022

Grid Coordinates of Well: 1,280,971.976247 ft N, 3,238,973.627565 ft E  
 Geographical Coordinates of Well: 40° 06' 05.40" N, 104° 38' 44.54" W  
 Grid Convergence at Surface is: 0.55°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,473.49ft  
 the Bottom Hole Displacement is 7,200.38ft in the Direction of 181.34° (True).

Magnetic Convergence at surface is: -8.06° ( 3 August 2012, , BGGM2011)

