

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 23-T2N-R66W

Turkey Springs 1C-14HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

## Sperry Drilling Services

# Proposal Report

28 November, 2012

Well Coordinates: 1,291,186.96 N, 3,213,009.28 E (40° 07' 48.68" N, 104° 44' 17.54" W)

Ground Level: 5,102.00 ft

Local Coordinate Origin: Centered on Well Turkey Springs 1C-14HZ

Viewing Datum: RKB=17 @ 5119.00ft (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. 23-T2N-R66W  
 Well: Turkey Springs 1C-14HZ  
 Wellbore: Plan A Rev 0  
 Design: Plan A Rev 0 Permit

# Anadarko Petroleum Corp.

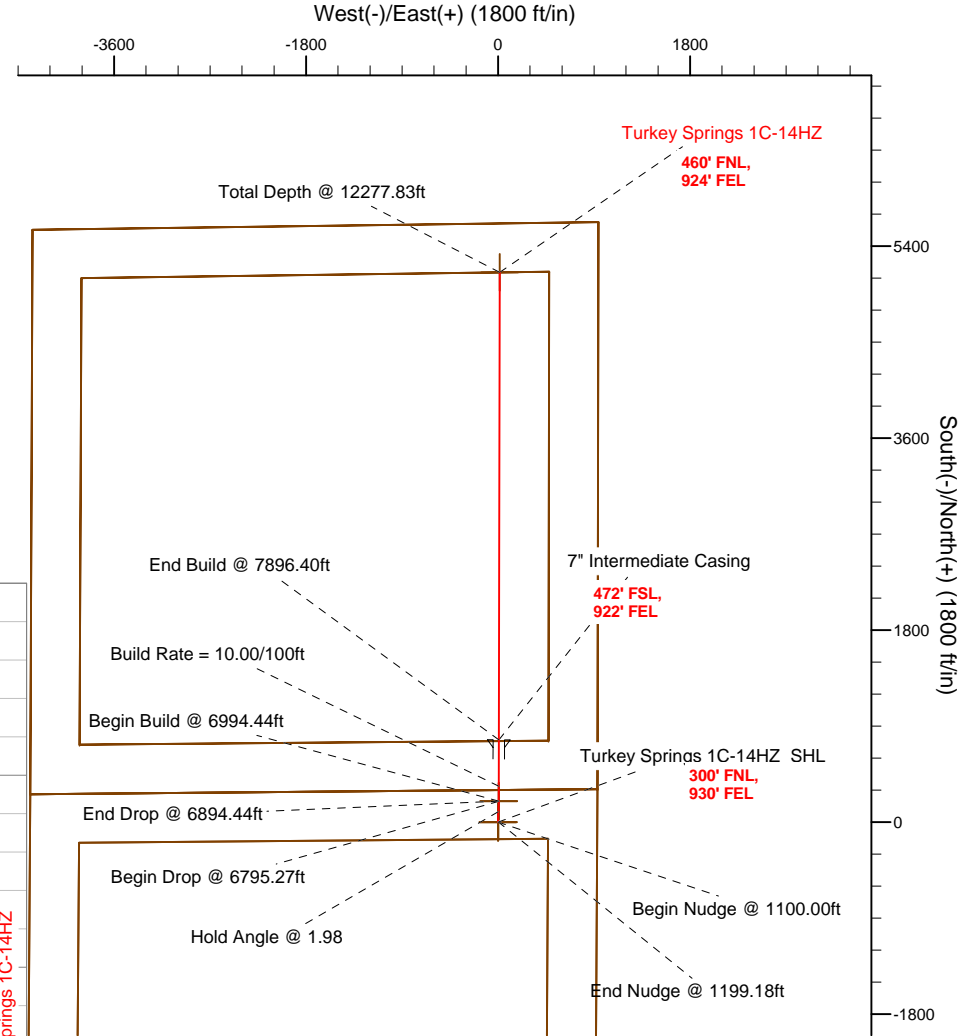
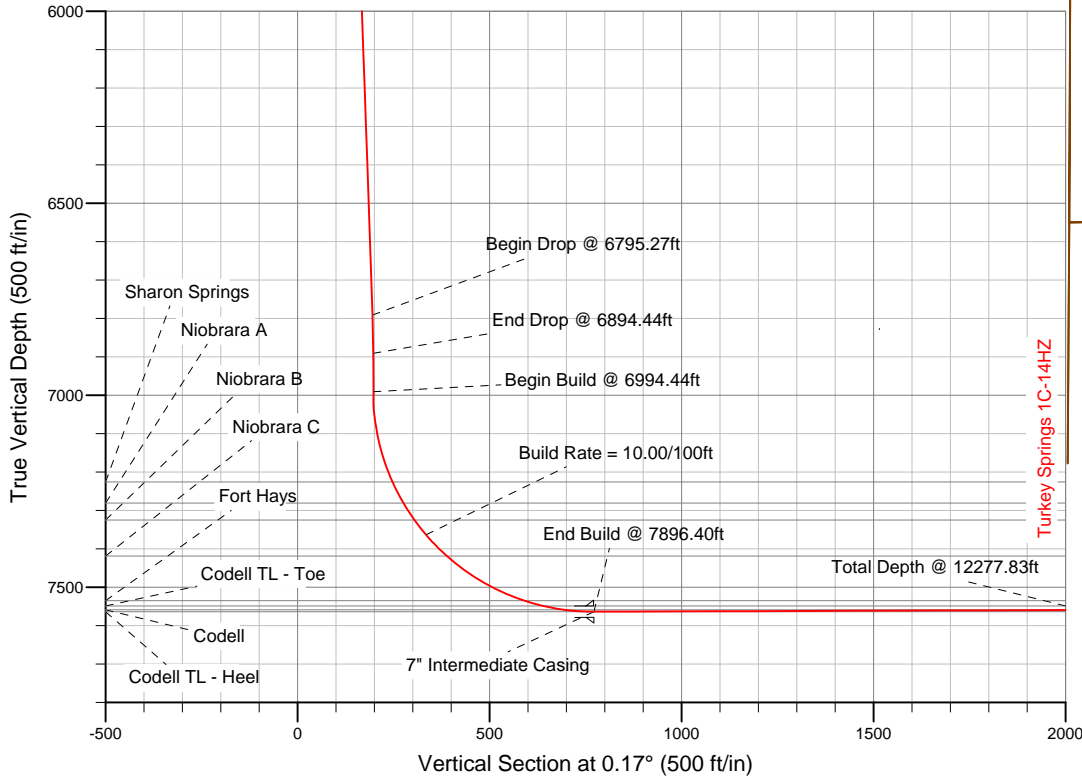


### SECTION DETAILS

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	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	1199.18	1.98	2.04	1199.16	1.72	0.06	2.00	2.04	1.72	
4	6795.27	1.98	2.04	6791.89	195.28	6.94	0.00	0.00	195.30	
5	6894.44	0.00	0.00	6891.05	197.00	7.00	2.00	180.00	197.02	Turkey Springs 1C-14HZ_DP1gt
6	6894.44	0.00	0.00	6891.05	197.00	7.00	0.00	0.00	197.02	Turkey Springs 1C-14HZ_DP1gt2
7	7896.40	90.20	0.10	7564.00	771.92	7.97	10.00	0.10	771.94	
8	12277.83	90.20	0.10	7549.00	5153.32	15.38	0.00	0.00	5153.34	Turkey Springs 1C-14HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Turkey Springs 1C-14HZ_SB22	0.00	0.00	0.00	40.130190	-104.738206	Polygon
Turkey Springs 1C-14HZ_SB23	0.00	0.00	0.00	40.130190	-104.738206	Polygon
Turkey Springs 1C-14HZ_Sec22	0.00	0.00	0.00	40.130190	-104.738206	Polygon
Turkey Springs 1C-14HZ_Sec23	0.00	0.00	0.00	40.130190	-104.738206	Polygon
Turkey Springs 1C-14HZ_SHL	0.00	0.00	0.00	40.130190	-104.738206	Point
Turkey Springs 1C-14HZ_DP1gt	6891.05	197.00	7.00	40.130731	-104.738181	Point
Turkey Springs 1C-14HZ_DP1gt2	6891.05	197.00	7.00	40.130731	-104.738181	Point
Turkey Springs 1C-14HZ_BHL	7549.00	5153.32	15.38	40.144336	-104.738151	Point



WELL DETAILS: Turkey Springs 1C-14HZ	
Ground Level	5102.00 RKB=17 @ 5119.00ft (Drilling Rig)
Plan: Plan A Rev 0 Permit (Turkey Springs 1C-14HZ/Plan A Rev 0)	
Created By: Fred Hartmann	Date: 12/14/2012
Reviewed: _____	Date: _____

**Plan Report for Turkey Springs 1C-14HZ - 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>Turkey Springs 1C-14HZ_SB22 - Turkey Springs 1C-14HZ_SB23 - Turkey Springs 1C-14HZ_SHL - Turkey Springs 1C-14HZ_Sec2</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
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 1100.00ft</b>										
1,199.18	1.98	2.04	1,199.16	1.72	0.06	1.72	2.00	2.00	0.00	2.04
<b>End Nudge @ 1199.18ft</b>										
1,200.00	1.98	2.04	1,199.98	1.74	0.06	1.74	0.00	0.00	0.00	0.00
1,300.00	1.98	2.04	1,299.92	5.20	0.18	5.20	0.00	0.00	0.00	0.00
1,400.00	1.98	2.04	1,399.86	8.66	0.31	8.66	0.00	0.00	0.00	0.00
1,500.00	1.98	2.04	1,499.80	12.12	0.43	12.12	0.00	0.00	0.00	0.00
1,600.00	1.98	2.04	1,599.74	15.58	0.55	15.58	0.00	0.00	0.00	0.00
1,700.00	1.98	2.04	1,699.68	19.04	0.68	19.04	0.00	0.00	0.00	0.00
1,800.00	1.98	2.04	1,799.62	22.50	0.80	22.50	0.00	0.00	0.00	0.00
1,900.00	1.98	2.04	1,899.56	25.96	0.92	25.96	0.00	0.00	0.00	0.00
2,000.00	1.98	2.04	1,999.50	29.42	1.05	29.42	0.00	0.00	0.00	0.00
2,100.00	1.98	2.04	2,099.44	32.87	1.17	32.88	0.00	0.00	0.00	0.00
2,200.00	1.98	2.04	2,199.38	36.33	1.29	36.34	0.00	0.00	0.00	0.00
2,300.00	1.98	2.04	2,299.32	39.79	1.41	39.80	0.00	0.00	0.00	0.00
2,400.00	1.98	2.04	2,399.26	43.25	1.54	43.26	0.00	0.00	0.00	0.00
2,500.00	1.98	2.04	2,499.20	46.71	1.66	46.72	0.00	0.00	0.00	0.00
2,600.00	1.98	2.04	2,599.14	50.17	1.78	50.18	0.00	0.00	0.00	0.00
2,700.00	1.98	2.04	2,699.08	53.63	1.91	53.63	0.00	0.00	0.00	0.00
2,800.00	1.98	2.04	2,799.02	57.09	2.03	57.09	0.00	0.00	0.00	0.00
2,900.00	1.98	2.04	2,898.96	60.55	2.15	60.55	0.00	0.00	0.00	0.00
3,000.00	1.98	2.04	2,998.90	64.01	2.27	64.01	0.00	0.00	0.00	0.00
3,100.00	1.98	2.04	3,098.84	67.47	2.40	67.47	0.00	0.00	0.00	0.00
3,200.00	1.98	2.04	3,198.78	70.92	2.52	70.93	0.00	0.00	0.00	0.00
3,300.00	1.98	2.04	3,298.72	74.38	2.64	74.39	0.00	0.00	0.00	0.00
3,400.00	1.98	2.04	3,398.66	77.84	2.77	77.85	0.00	0.00	0.00	0.00
3,500.00	1.98	2.04	3,498.60	81.30	2.89	81.31	0.00	0.00	0.00	0.00
3,600.00	1.98	2.04	3,598.54	84.76	3.01	84.77	0.00	0.00	0.00	0.00
3,700.00	1.98	2.04	3,698.48	88.22	3.13	88.23	0.00	0.00	0.00	0.00
3,800.00	1.98	2.04	3,798.42	91.68	3.26	91.69	0.00	0.00	0.00	0.00
3,900.00	1.98	2.04	3,898.36	95.14	3.38	95.15	0.00	0.00	0.00	0.00
4,000.00	1.98	2.04	3,998.30	98.60	3.50	98.61	0.00	0.00	0.00	0.00
<b>Hold Angle @ 1.98</b>										
4,100.00	1.98	2.04	4,098.24	102.06	3.63	102.07	0.00	0.00	0.00	0.00
4,200.00	1.98	2.04	4,198.18	105.51	3.75	105.52	0.00	0.00	0.00	0.00
4,232.84	1.98	2.04	4,231.00	106.65	3.79	106.66	0.00	0.00	0.00	0.00
<b>Parkman</b>										
4,300.00	1.98	2.04	4,298.12	108.97	3.87	108.98	0.00	0.00	0.00	0.00
4,400.00	1.98	2.04	4,398.06	112.43	4.00	112.44	0.00	0.00	0.00	0.00
4,500.00	1.98	2.04	4,498.00	115.89	4.12	115.90	0.00	0.00	0.00	0.00
4,600.00	1.98	2.04	4,597.94	119.35	4.24	119.36	0.00	0.00	0.00	0.00
4,624.07	1.98	2.04	4,622.00	120.18	4.27	120.20	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,700.00	1.98	2.04	4,697.88	122.81	4.36	122.82	0.00	0.00	0.00	0.00
4,800.00	1.98	2.04	4,797.82	126.27	4.49	126.28	0.00	0.00	0.00	0.00

**Plan Report for Turkey Springs 1C-14HZ - 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 (°)
4,900.00	1.98	2.04	4,897.76	129.73	4.61	129.74	0.00	0.00	0.00	0.00
5,000.00	1.98	2.04	4,997.70	133.19	4.73	133.20	0.00	0.00	0.00	0.00
5,100.00	1.98	2.04	5,097.64	136.65	4.86	136.66	0.00	0.00	0.00	0.00
5,200.00	1.98	2.04	5,197.58	140.10	4.98	140.12	0.00	0.00	0.00	0.00
5,300.00	1.98	2.04	5,297.52	143.56	5.10	143.58	0.00	0.00	0.00	0.00
5,400.00	1.98	2.04	5,397.46	147.02	5.22	147.04	0.00	0.00	0.00	0.00
5,500.00	1.98	2.04	5,497.40	150.48	5.35	150.50	0.00	0.00	0.00	0.00
5,600.00	1.98	2.04	5,597.34	153.94	5.47	153.96	0.00	0.00	0.00	0.00
5,700.00	1.98	2.04	5,697.28	157.40	5.59	157.42	0.00	0.00	0.00	0.00
5,800.00	1.98	2.04	5,797.22	160.86	5.72	160.87	0.00	0.00	0.00	0.00
5,900.00	1.98	2.04	5,897.16	164.32	5.84	164.33	0.00	0.00	0.00	0.00
6,000.00	1.98	2.04	5,997.10	167.78	5.96	167.79	0.00	0.00	0.00	0.00
6,100.00	1.98	2.04	6,097.04	171.24	6.08	171.25	0.00	0.00	0.00	0.00
6,200.00	1.98	2.04	6,196.98	174.69	6.21	174.71	0.00	0.00	0.00	0.00
6,300.00	1.98	2.04	6,296.92	178.15	6.33	178.17	0.00	0.00	0.00	0.00
6,400.00	1.98	2.04	6,396.86	181.61	6.45	181.63	0.00	0.00	0.00	0.00
6,500.00	1.98	2.04	6,496.80	185.07	6.58	185.09	0.00	0.00	0.00	0.00
6,600.00	1.98	2.04	6,596.74	188.53	6.70	188.55	0.00	0.00	0.00	0.00
6,700.00	1.98	2.04	6,696.68	191.99	6.82	192.01	0.00	0.00	0.00	0.00
6,795.27	1.98	2.04	6,791.90	195.28	6.94	195.30	0.00	0.00	0.00	0.00
<b>Begin Drop @ 6795.27ft</b>										
6,800.00	1.89	2.04	6,796.62	195.44	6.94	195.46	2.00	-2.00	0.00	180.00
6,894.44	0.00	0.00	6,891.05	197.00	7.00	197.02	2.00	-2.00	-2.15	-180.00
<b>End Drop @ 6894.44ft - Turkey Springs 1C-14HZ_DPgtt</b>										
6,900.00	0.00	0.00	6,896.61	197.00	7.00	197.02	0.00	0.00	0.00	180.00
6,994.44	0.00	0.00	6,991.05	197.00	7.00	197.02	0.00	0.00	0.00	0.00
<b>Begin Build @ 6994.44ft - Turkey Springs 1C-14HZ_DPgtt2</b>										
7,000.00	0.56	0.10	6,996.61	197.03	7.00	197.05	10.00	10.00	0.00	0.10
7,100.00	10.56	0.10	7,096.01	206.70	7.02	206.72	10.00	10.00	0.00	0.00
7,200.00	20.56	0.10	7,192.23	233.48	7.06	233.50	10.00	10.00	0.00	0.00
7,236.53	24.21	0.10	7,226.00	247.39	7.09	247.41	10.00	10.00	0.00	0.00
<b>Sharon Springs</b>										
7,298.46	30.40	0.10	7,281.00	275.78	7.13	275.80	10.00	10.00	0.00	0.00
<b>Niobrara A</b>										
7,300.00	30.56	0.10	7,282.33	276.56	7.13	276.58	10.00	10.00	0.00	0.00
7,350.96	35.65	0.10	7,325.00	304.38	7.18	304.40	10.00	10.00	0.00	0.00
<b>Niobrara B</b>										
7,400.00	40.56	0.10	7,363.58	334.64	7.23	334.66	10.00	10.00	0.00	0.00
<b>Build Rate = 10.00/100ft</b>										
7,477.68	48.32	0.10	7,419.00	388.99	7.32	389.01	10.00	10.00	0.00	0.00
<b>Niobrara C</b>										
7,500.00	50.56	0.10	7,433.51	405.94	7.35	405.96	10.00	10.00	0.00	0.00
7,600.00	60.56	0.10	7,490.00	488.30	7.49	488.32	10.00	10.00	0.00	0.00
7,700.00	70.56	0.10	7,531.33	579.23	7.65	579.25	10.00	10.00	0.00	0.00
7,711.34	71.69	0.10	7,535.00	589.96	7.66	589.98	10.00	10.00	0.00	0.00
<b>Fort Hays</b>										
7,800.00	80.56	0.10	7,556.24	675.94	7.81	675.96	10.00	10.00	0.00	0.00
7,818.63	82.42	0.10	7,559.00	694.37	7.84	694.39	10.00	10.00	0.00	0.00
<b>Codell</b>										
7,891.45	89.70	0.10	7,564.00	766.97	7.96	766.99	10.00	10.00	0.00	0.00
<b>Codell TL - Heel</b>										
7,896.40	90.20	0.10	7,564.00	771.91	7.97	771.93	10.00	10.00	0.00	0.00
<b>End Build @ 7896.40ft - 7" Intermediate Casing</b>										
7,900.00	90.20	0.10	7,563.99	775.51	7.98	775.53	0.01	0.01	0.00	0.00
8,000.00	90.20	0.10	7,563.65	875.51	8.15	875.53	0.00	0.00	0.00	0.00
8,100.00	90.20	0.10	7,563.31	975.51	8.32	975.53	0.00	0.00	0.00	0.00
8,200.00	90.20	0.10	7,562.96	1,075.51	8.48	1,075.53	0.00	0.00	0.00	0.00
8,300.00	90.20	0.10	7,562.62	1,175.51	8.65	1,175.53	0.00	0.00	0.00	0.00

**Plan Report for Turkey Springs 1C-14HZ - 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)	Toothface Azimuth (°)
8,400.00	90.20	0.10	7,562.28	1,275.51	8.82	1,275.53	0.00	0.00	0.00	0.00
8,500.00	90.20	0.10	7,561.94	1,375.51	8.99	1,375.53	0.00	0.00	0.00	0.00
8,600.00	90.20	0.10	7,561.59	1,475.51	9.16	1,475.53	0.00	0.00	0.00	0.00
8,700.00	90.20	0.10	7,561.25	1,575.51	9.33	1,575.53	0.00	0.00	0.00	0.00
8,800.00	90.20	0.10	7,560.91	1,675.51	9.50	1,675.53	0.00	0.00	0.00	0.00
8,900.00	90.20	0.10	7,560.57	1,775.51	9.67	1,775.53	0.00	0.00	0.00	0.00
9,000.00	90.20	0.10	7,560.23	1,875.51	9.84	1,875.53	0.00	0.00	0.00	0.00
9,100.00	90.20	0.10	7,559.88	1,975.51	10.01	1,975.53	0.00	0.00	0.00	0.00
9,200.00	90.20	0.10	7,559.54	2,075.50	10.17	2,075.53	0.00	0.00	0.00	0.00
9,300.00	90.20	0.10	7,559.20	2,175.50	10.34	2,175.53	0.00	0.00	0.00	0.00
9,400.00	90.20	0.10	7,558.86	2,275.50	10.51	2,275.52	0.00	0.00	0.00	0.00
9,500.00	90.20	0.10	7,558.51	2,375.50	10.68	2,375.52	0.00	0.00	0.00	0.00
9,600.00	90.20	0.10	7,558.17	2,475.50	10.85	2,475.52	0.00	0.00	0.00	0.00
9,700.00	90.20	0.10	7,557.83	2,575.50	11.02	2,575.52	0.00	0.00	0.00	0.00
9,800.00	90.20	0.10	7,557.49	2,675.50	11.19	2,675.52	0.00	0.00	0.00	0.00
9,900.00	90.20	0.10	7,557.14	2,775.50	11.36	2,775.52	0.00	0.00	0.00	0.00
10,000.00	90.20	0.10	7,556.80	2,875.50	11.53	2,875.52	0.00	0.00	0.00	0.00
10,100.00	90.20	0.10	7,556.46	2,975.50	11.70	2,975.52	0.00	0.00	0.00	0.00
10,200.00	90.20	0.10	7,556.12	3,075.50	11.86	3,075.52	0.00	0.00	0.00	0.00
10,300.00	90.20	0.10	7,555.77	3,175.50	12.03	3,175.52	0.00	0.00	0.00	0.00
10,400.00	90.20	0.10	7,555.43	3,275.50	12.20	3,275.52	0.00	0.00	0.00	0.00
10,500.00	90.20	0.10	7,555.09	3,375.50	12.37	3,375.52	0.00	0.00	0.00	0.00
10,600.00	90.20	0.10	7,554.75	3,475.49	12.54	3,475.52	0.00	0.00	0.00	0.00
10,700.00	90.20	0.10	7,554.40	3,575.49	12.71	3,575.52	0.00	0.00	0.00	0.00
10,800.00	90.20	0.10	7,554.06	3,675.49	12.88	3,675.52	0.00	0.00	0.00	0.00
10,900.00	90.20	0.10	7,553.72	3,775.49	13.05	3,775.51	0.00	0.00	0.00	0.00
11,000.00	90.20	0.10	7,553.38	3,875.49	13.22	3,875.51	0.00	0.00	0.00	0.00
11,100.00	90.20	0.10	7,553.03	3,975.49	13.39	3,975.51	0.00	0.00	0.00	0.00
11,200.00	90.20	0.10	7,552.69	4,075.49	13.55	4,075.51	0.00	0.00	0.00	0.00
11,300.00	90.20	0.10	7,552.35	4,175.49	13.72	4,175.51	0.00	0.00	0.00	0.00
11,400.00	90.20	0.10	7,552.01	4,275.49	13.89	4,275.51	0.00	0.00	0.00	0.00
11,500.00	90.20	0.10	7,551.66	4,375.49	14.06	4,375.51	0.00	0.00	0.00	0.00
11,600.00	90.20	0.10	7,551.32	4,475.49	14.23	4,475.51	0.00	0.00	0.00	0.00
11,700.00	90.20	0.10	7,550.98	4,575.49	14.40	4,575.51	0.00	0.00	0.00	0.00
11,800.00	90.20	0.10	7,550.64	4,675.49	14.57	4,675.51	0.00	0.00	0.00	0.00
11,900.00	90.20	0.10	7,550.29	4,775.49	14.74	4,775.51	0.00	0.00	0.00	0.00
12,000.00	90.20	0.10	7,549.95	4,875.48	14.91	4,875.51	0.00	0.00	0.00	0.00
12,100.00	90.20	0.10	7,549.61	4,975.48	15.08	4,975.51	0.00	0.00	0.00	0.00
12,200.00	90.20	0.10	7,549.27	5,075.48	15.24	5,075.51	0.00	0.00	0.00	0.00
12,277.82	90.20	0.10	7,549.00	5,153.30	15.38	5,153.33	0.00	0.00	0.00	0.00
<b>Codell TL - Toe</b>										
12,277.83	90.20	0.10	7,549.00	5,153.31	15.38	5,153.34	0.00	0.00	0.00	0.00
<b>Total Depth @ 12277.83ft - Turkey Springs 1C-14HZ_BHL</b>										

**Plan Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,100.00	1,100.00	0.00	0.00	Begin Nudge @ 1100.00ft
1,199.18	1,199.16	1.72	0.06	End Nudge @ 1199.18ft
4,000.00	3,998.30	98.60	3.50	Hold Angle @ 1.98
6,795.27	6,791.90	195.28	6.94	Begin Drop @ 6795.27ft
6,894.44	6,891.05	197.00	7.00	End Drop @ 6894.44ft
6,994.44	6,991.05	197.00	7.00	Begin Build @ 6994.44ft
7,400.00	7,363.58	334.64	7.23	Build Rate = 10.00/100ft
7,896.40	7,564.00	771.91	7.97	End Build @ 7896.40ft
12,277.83	7,549.00	5,153.31	15.38	Total Depth @ 12277.83ft

**Plan Report for Turkey Springs 1C-14HZ - Plan A Rev 0 Permit****Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (ft)	Origin +E/-W (ft)	Start TVD (ft)
Target	Turkey Springs 1C-14HZ_BHL	0.17	Slot	0.00	0.00	0.00

**Survey tool program**

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,277.83	Plan A Rev 0 Permit	MWD

**Casing Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,896.40	7,564.00	7" Intermediate Casing	7	8-3/4

**Formation Details**

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,232.84	4,231.00	Parkman		0.00	
4,624.07	4,622.00	Sussex		0.00	
7,236.53	7,226.00	Sharon Springs		0.00	
7,298.46	7,281.00	Niobrara A		0.00	
7,350.96	7,325.00	Niobrara B		0.00	
7,477.68	7,419.00	Niobrara C		0.00	
7,711.34	7,535.00	Fort Hays		0.00	
7,818.63	7,559.00	Codell		0.00	
7,891.45	7,564.00	Codell TL - Heel		0.00	
12,277.82	7,549.00	Codell TL - Toe		0.00	

**Targets associated with this wellbore**

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Turkey Springs 1C-14HZ_SHL	0.00	0.00	0.00	Point
Turkey Springs 1C-14HZ_DPtgt	6,891.05	197.00	7.00	Point
Turkey Springs 1C-14HZ_BHL	7,549.00	5,153.32	15.38	Point
Turkey Springs 1C-14HZ_DPtgt2	6,991.05	197.00	7.00	Point
Turkey Springs 1C-14HZ_Sec23	0.00	0.00	0.00	Polygon
Turkey Springs 1C-14HZ_SB22	0.00	0.00	0.00	Polygon
Turkey Springs 1C-14HZ_Sec22	0.00	0.00	0.00	Polygon
Turkey Springs 1C-14HZ_SB23	0.00	0.00	0.00	Polygon

**North Reference Sheet for Sec. 23-T2N-R66W - Turkey Springs 1C-14HZ - 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=17 @ 5119.00ft (Drilling Rig). Northing and Easting are relative to Turkey Springs 1C-14HZ  
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: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995905

Grid Coordinates of Well: 1,291,186.96 ft N, 3,213,009.28 ft E  
Geographical Coordinates of Well: 40° 07' 48.68" N, 104° 44' 17.54" W  
Grid Convergence at Surface is: 0.49°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,277.83ft  
the Bottom Hole Displacement is 5,153.34ft in the Direction of 0.17° (True).

Magnetic Convergence at surface is: -8.19° (26 November 2012, , BGGM2012)

