

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 22-T3N-R66W

Roberts 13C-22HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

Sperry Drilling Services

Proposal Report

17 September, 2012

Well Coordinates: 1,322,477.51 N, 3,203,497.29 E (40° 12' 58.69" N, 104° 46' 16.69" W)

Ground Level: 4,885.00 ft

Local Coordinate Origin:

Centered on Well Roberts 13C-22HZ

Viewing Datum:

RKB=17 @ 4902.00ft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 22-T3N-R66W
Well: Roberts 13C-22HZ
Wellbore: Plan A Rev 0
Design: Plan A Rev 0 Permit

Anadarko Petroleum Corp.

HALLIBURTON
Sperry Drilling

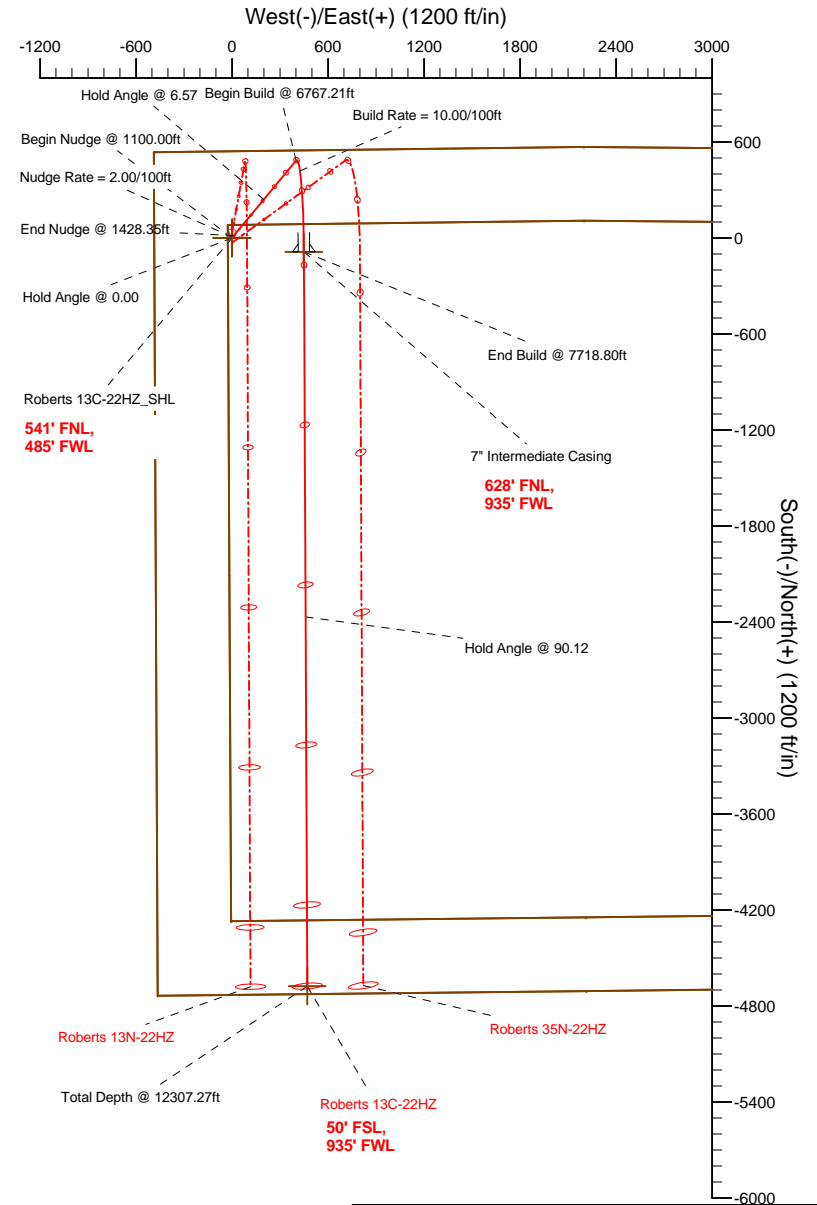
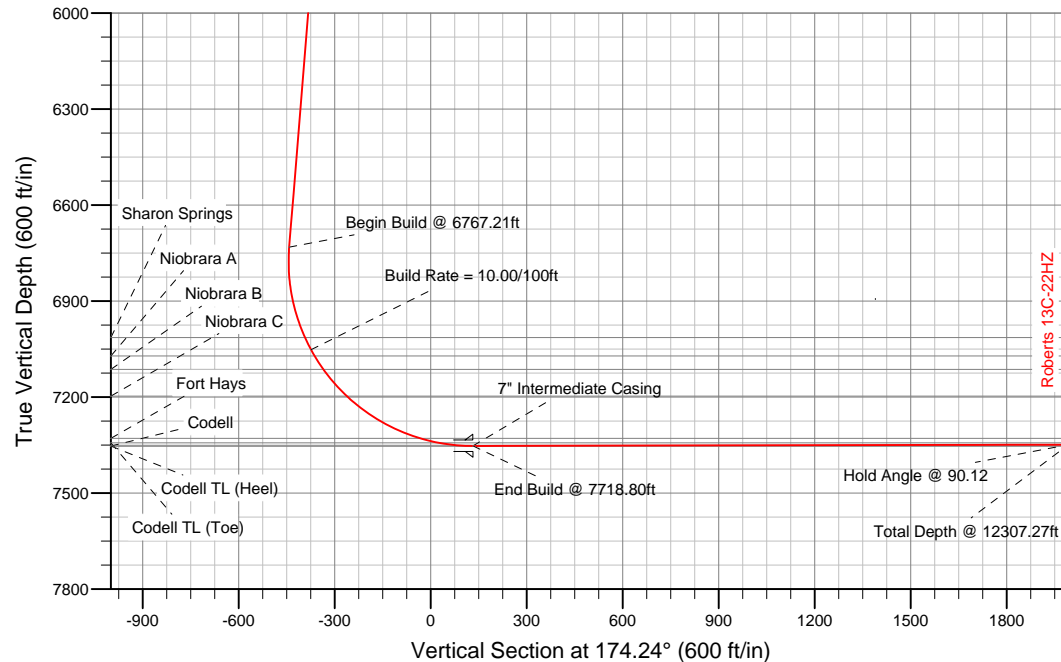
SECTION DETAILS

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	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	1428.35	6.57	39.62	1427.63	14.48	11.99	2.00	39.62	-13.20	
4	6767.21	6.57	39.62	6731.46	484.77	401.37	0.00	0.00	-442.08	
5	7718.80	90.12	179.73	7353.00	-87.00	450.00	10.00	139.92	131.69	Roberts 13C-22HZ_Casing Point
6	12307.27	90.12	179.73	7343.00	-4675.41	471.23	0.00	0.00	4699.10	Roberts 13C-22HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Roberts 13C-22HZ_Section Lines	0.00	0.00	0.00	40.216303	-104.771303	Polygon
Roberts 13C-22HZ_Setback Lines	0.00	0.00	0.00	40.216303	-104.771303	Polygon
Roberts 13C-22HZ_SHL	0.00	0.00	0.00	40.216303	-104.771303	Point
Roberts 13C-22HZ_BHL	7343.00	-4675.41	471.23	40.203469	-104.769616	Point
Roberts 13C-22HZ_Casing Point	7353.00	-87.00	450.00	40.216064	-104.769692	Point

Target Line:
7352.84' TVDkb @ 0° VS Drilling 90.12°



WELL DETAILS: Roberts 13C-22HZ

Ground Level: 4885.00 RKB=17 @ 4902.00ft (Drilling Rig)

Plan: Plan A Rev 0 Permit (Roberts 13C-22HZ/Plan A Rev 0)

Created By: Fred Hartmann Date: 09/17/2012
Reviewed: _____ Date: _____

Plan Report for Roberts 13C-22HZ - 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
Roberts 13C-22HZ_SHL - Roberts 13C-22HZ_Section Lines - Roberts 13C-22HZ_Setback Lines										
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
Hold Angle @ 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
751.00	0.00	0.00	751.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills										
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
Begin Nudge @ 1100.00ft										
1,200.00	2.00	39.62	1,199.98	1.34	1.11	-1.23	2.00	2.00	0.00	39.62
1,300.00	4.00	39.62	1,299.84	5.38	4.45	-4.90	2.00	2.00	0.00	0.00
Nudge Rate = 2.00/100ft										
1,400.00	6.00	39.62	1,399.45	12.09	10.01	-11.02	2.00	2.00	0.00	0.00
1,428.35	6.57	39.62	1,427.63	14.48	11.99	-13.20	2.00	2.00	0.00	0.00
End Nudge @ 1428.35ft										
1,500.00	6.57	39.62	1,498.81	20.79	17.21	-18.96	0.00	0.00	0.00	0.00
1,600.00	6.57	39.62	1,598.16	29.60	24.51	-26.99	0.00	0.00	0.00	0.00
1,700.00	6.57	39.62	1,697.50	38.41	31.80	-35.03	0.00	0.00	0.00	0.00
1,800.00	6.57	39.62	1,796.84	47.22	39.09	-43.06	0.00	0.00	0.00	0.00
1,900.00	6.57	39.62	1,896.19	56.03	46.39	-51.09	0.00	0.00	0.00	0.00
2,000.00	6.57	39.62	1,995.53	64.83	53.68	-59.12	0.00	0.00	0.00	0.00
2,100.00	6.57	39.62	2,094.87	73.64	60.97	-67.16	0.00	0.00	0.00	0.00
2,200.00	6.57	39.62	2,194.22	82.45	68.27	-75.19	0.00	0.00	0.00	0.00
2,300.00	6.57	39.62	2,293.56	91.26	75.56	-83.22	0.00	0.00	0.00	0.00
2,400.00	6.57	39.62	2,392.91	100.07	82.85	-91.26	0.00	0.00	0.00	0.00
2,500.00	6.57	39.62	2,492.25	108.88	90.15	-99.29	0.00	0.00	0.00	0.00
2,600.00	6.57	39.62	2,591.59	117.69	97.44	-107.32	0.00	0.00	0.00	0.00
2,700.00	6.57	39.62	2,690.94	126.50	104.73	-115.36	0.00	0.00	0.00	0.00
2,800.00	6.57	39.62	2,790.28	135.31	112.03	-123.39	0.00	0.00	0.00	0.00
2,900.00	6.57	39.62	2,889.63	144.11	119.32	-131.42	0.00	0.00	0.00	0.00
3,000.00	6.57	39.62	2,988.97	152.92	126.61	-139.46	0.00	0.00	0.00	0.00
3,100.00	6.57	39.62	3,088.31	161.73	133.91	-147.49	0.00	0.00	0.00	0.00
3,200.00	6.57	39.62	3,187.66	170.54	141.20	-155.52	0.00	0.00	0.00	0.00
3,300.00	6.57	39.62	3,287.00	179.35	148.49	-163.56	0.00	0.00	0.00	0.00
3,400.00	6.57	39.62	3,386.35	188.16	155.79	-171.59	0.00	0.00	0.00	0.00
3,500.00	6.57	39.62	3,485.69	196.97	163.08	-179.62	0.00	0.00	0.00	0.00
3,600.00	6.57	39.62	3,585.03	205.78	170.37	-187.65	0.00	0.00	0.00	0.00
3,700.00	6.57	39.62	3,684.38	214.59	177.67	-195.69	0.00	0.00	0.00	0.00
3,800.00	6.57	39.62	3,783.72	223.39	184.96	-203.72	0.00	0.00	0.00	0.00
3,883.83	6.57	39.62	3,867.00	230.78	191.07	-210.45	0.00	0.00	0.00	0.00
Parkman										
3,900.00	6.57	39.62	3,883.07	232.20	192.25	-211.75	0.00	0.00	0.00	0.00
4,000.00	6.57	39.62	3,982.41	241.01	199.55	-219.79	0.00	0.00	0.00	0.00
Hold Angle @ 6.57										
4,100.00	6.57	39.62	4,081.75	249.82	206.84	-227.82	0.00	0.00	0.00	0.00
4,200.00	6.57	39.62	4,181.10	258.63	214.13	-235.85	0.00	0.00	0.00	0.00
4,300.00	6.57	39.62	4,280.44	267.44	221.43	-243.89	0.00	0.00	0.00	0.00
4,400.00	6.57	39.62	4,379.78	276.25	228.72	-251.92	0.00	0.00	0.00	0.00
4,435.45	6.57	39.62	4,415.00	279.37	231.31	-254.77	0.00	0.00	0.00	0.00
Sussex										

Plan Report for Roberts 13C-22HZ - 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 (°)
4,500.00	6.57	39.62	4,479.13	285.06	236.01	-259.95	0.00	0.00	0.00	0.00
4,600.00	6.57	39.62	4,578.47	293.87	243.31	-267.99	0.00	0.00	0.00	0.00
4,700.00	6.57	39.62	4,677.82	302.68	250.60	-276.02	0.00	0.00	0.00	0.00
4,800.00	6.57	39.62	4,777.16	311.48	257.89	-284.05	0.00	0.00	0.00	0.00
4,900.00	6.57	39.62	4,876.50	320.29	265.19	-292.09	0.00	0.00	0.00	0.00
5,000.00	6.57	39.62	4,975.85	329.10	272.48	-300.12	0.00	0.00	0.00	0.00
5,100.00	6.57	39.62	5,075.19	337.91	279.77	-308.15	0.00	0.00	0.00	0.00
5,200.00	6.57	39.62	5,174.54	346.72	287.07	-316.18	0.00	0.00	0.00	0.00
5,300.00	6.57	39.62	5,273.88	355.53	294.36	-324.22	0.00	0.00	0.00	0.00
5,400.00	6.57	39.62	5,373.22	364.34	301.65	-332.25	0.00	0.00	0.00	0.00
5,500.00	6.57	39.62	5,472.57	373.15	308.95	-340.28	0.00	0.00	0.00	0.00
5,600.00	6.57	39.62	5,571.91	381.96	316.24	-348.32	0.00	0.00	0.00	0.00
5,700.00	6.57	39.62	5,671.26	390.76	323.53	-356.35	0.00	0.00	0.00	0.00
5,800.00	6.57	39.62	5,770.60	399.57	330.83	-364.38	0.00	0.00	0.00	0.00
5,900.00	6.57	39.62	5,869.94	408.38	338.12	-372.42	0.00	0.00	0.00	0.00
6,000.00	6.57	39.62	5,969.29	417.19	345.41	-380.45	0.00	0.00	0.00	0.00
6,100.00	6.57	39.62	6,068.63	426.00	352.71	-388.48	0.00	0.00	0.00	0.00
6,200.00	6.57	39.62	6,167.97	434.81	360.00	-396.52	0.00	0.00	0.00	0.00
6,300.00	6.57	39.62	6,267.32	443.62	367.29	-404.55	0.00	0.00	0.00	0.00
6,400.00	6.57	39.62	6,366.66	452.43	374.59	-412.58	0.00	0.00	0.00	0.00
6,500.00	6.57	39.62	6,466.01	461.24	381.88	-420.62	0.00	0.00	0.00	0.00
6,600.00	6.57	39.62	6,565.35	470.04	389.17	-428.65	0.00	0.00	0.00	0.00
6,700.00	6.57	39.62	6,664.69	478.85	396.47	-436.68	0.00	0.00	0.00	0.00
6,767.21	6.57	39.62	6,731.46	484.77	401.37	-442.08	0.00	0.00	0.00	0.00
Begin Build @ 6767.21ft										
6,800.00	4.57	67.14	6,764.10	486.73	403.77	-443.78	10.00	-6.08	83.91	139.92
6,900.00	9.26	152.79	6,863.54	481.11	411.14	-437.45	10.00	4.68	85.65	112.52
7,000.00	18.71	167.13	6,960.50	458.26	418.41	-413.99	10.00	9.45	14.35	27.24
7,057.54	24.35	170.33	7,014.00	437.55	422.46	-392.98	10.00	9.79	5.56	13.27
Sharon Springs										
7,100.00	28.53	171.92	7,052.01	418.88	425.35	-374.11	10.00	9.86	3.74	10.29
Build Rate = 10.00/100ft										
7,123.00	30.81	172.61	7,072.00	407.59	426.88	-362.73	10.00	9.89	3.01	8.87
Niobrara A										
7,173.27	35.79	173.85	7,114.00	380.20	430.12	-335.15	10.00	9.91	2.46	8.27
Niobrara B										
7,200.00	38.44	174.39	7,135.31	364.15	431.77	-319.02	10.00	9.93	2.02	7.23
7,283.89	46.78	175.75	7,197.00	307.62	436.59	-262.28	10.00	9.94	1.62	6.80
Niobrara C										
7,300.00	48.38	175.96	7,207.87	295.75	437.45	-250.39	10.00	9.95	1.35	5.80
7,400.00	58.34	177.12	7,267.47	215.76	442.23	-170.32	10.00	9.96	1.15	5.65
7,500.00	68.31	178.04	7,312.31	126.59	445.97	-81.23	10.00	9.97	0.93	4.96
7,550.89	73.38	178.46	7,329.00	78.56	447.44	-33.29	10.00	9.97	0.83	4.55
Fort Hays										
7,600.00	78.28	178.85	7,341.02	30.97	448.55	14.17	10.00	9.97	0.78	4.41
7,700.00	88.25	179.60	7,352.73	-68.20	449.89	112.98	10.00	9.97	0.75	4.31
7,718.80	90.12	179.73	7,353.00	-87.00	450.00	131.69	10.00	9.97	0.74	4.22
End Build @ 7718.80ft - Codell - Codell TL (Heel) - 7" Intermediate Casing - Roberts 13C-22HZ_Casing Point										
7,800.00	90.12	179.73	7,352.82	-168.20	450.38	212.52	0.00	0.00	0.00	4.22
7,900.00	90.12	179.73	7,352.61	-268.20	450.84	312.06	0.00	0.00	0.00	0.00
8,000.00	90.12	179.73	7,352.39	-368.20	451.30	411.60	0.00	0.00	0.00	0.00
8,100.00	90.12	179.73	7,352.17	-468.20	451.76	511.14	0.00	0.00	0.00	0.00
8,200.00	90.12	179.73	7,351.95	-568.19	452.23	610.68	0.00	0.00	0.00	0.00
8,300.00	90.12	179.73	7,351.73	-668.19	452.69	710.22	0.00	0.00	0.00	0.00
8,400.00	90.12	179.73	7,351.52	-768.19	453.15	809.76	0.00	0.00	0.00	0.00
8,500.00	90.12	179.73	7,351.30	-868.19	453.61	909.30	0.00	0.00	0.00	0.00
8,600.00	90.12	179.73	7,351.08	-968.19	454.08	1,008.84	0.00	0.00	0.00	0.00
8,700.00	90.12	179.73	7,350.86	-1,068.19	454.54	1,108.38	0.00	0.00	0.00	0.00
8,800.00	90.12	179.73	7,350.64	-1,168.19	455.00	1,207.93	0.00	0.00	0.00	0.00

Plan Report for Roberts 13C-22HZ - 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 (°)
8,900.00	90.12	179.73	7,350.43	-1,268.19	455.47	1,307.47	0.00	0.00	0.00	0.00
9,000.00	90.12	179.73	7,350.21	-1,368.18	455.93	1,407.01	0.00	0.00	0.00	0.00
9,100.00	90.12	179.73	7,349.99	-1,468.18	456.39	1,506.55	0.00	0.00	0.00	0.00
9,200.00	90.12	179.73	7,349.77	-1,568.18	456.85	1,606.09	0.00	0.00	0.00	0.00
9,300.00	90.12	179.73	7,349.55	-1,668.18	457.32	1,705.63	0.00	0.00	0.00	0.00
9,400.00	90.12	179.73	7,349.34	-1,768.18	457.78	1,805.17	0.00	0.00	0.00	0.00
9,500.00	90.12	179.73	7,349.12	-1,868.18	458.24	1,904.71	0.00	0.00	0.00	0.00
9,600.00	90.12	179.73	7,348.90	-1,968.18	458.70	2,004.25	0.00	0.00	0.00	0.00
9,700.00	90.12	179.73	7,348.68	-2,068.17	459.17	2,103.80	0.00	0.00	0.00	0.00
9,800.00	90.12	179.73	7,348.46	-2,168.17	459.63	2,203.34	0.00	0.00	0.00	0.00
9,900.00	90.12	179.73	7,348.25	-2,268.17	460.09	2,302.88	0.00	0.00	0.00	0.00
10,000.00	90.12	179.73	7,348.03	-2,368.17	460.55	2,402.42	0.00	0.00	0.00	0.00
Hold Angle @ 90.12										
10,100.00	90.12	179.73	7,347.81	-2,468.17	461.02	2,501.96	0.00	0.00	0.00	0.00
10,200.00	90.12	179.73	7,347.59	-2,568.17	461.48	2,601.50	0.00	0.00	0.00	0.00
10,300.00	90.12	179.73	7,347.37	-2,668.17	461.94	2,701.04	0.00	0.00	0.00	0.00
10,400.00	90.12	179.73	7,347.16	-2,768.17	462.40	2,800.58	0.00	0.00	0.00	0.00
10,500.00	90.12	179.73	7,346.94	-2,868.16	462.87	2,900.12	0.00	0.00	0.00	0.00
10,600.00	90.12	179.73	7,346.72	-2,968.16	463.33	2,999.66	0.00	0.00	0.00	0.00
10,700.00	90.12	179.73	7,346.50	-3,068.16	463.79	3,099.21	0.00	0.00	0.00	0.00
10,800.00	90.12	179.73	7,346.28	-3,168.16	464.26	3,198.75	0.00	0.00	0.00	0.00
10,900.00	90.12	179.73	7,346.07	-3,268.16	464.72	3,298.29	0.00	0.00	0.00	0.00
11,000.00	90.12	179.73	7,345.85	-3,368.16	465.18	3,397.83	0.00	0.00	0.00	0.00
11,100.00	90.12	179.73	7,345.63	-3,468.16	465.64	3,497.37	0.00	0.00	0.00	0.00
11,200.00	90.12	179.73	7,345.41	-3,568.16	466.11	3,596.91	0.00	0.00	0.00	0.00
11,300.00	90.12	179.73	7,345.20	-3,668.15	466.57	3,696.45	0.00	0.00	0.00	0.00
11,400.00	90.12	179.73	7,344.98	-3,768.15	467.03	3,795.99	0.00	0.00	0.00	0.00
11,500.00	90.12	179.73	7,344.76	-3,868.15	467.49	3,895.53	0.00	0.00	0.00	0.00
11,600.00	90.12	179.73	7,344.54	-3,968.15	467.96	3,995.07	0.00	0.00	0.00	0.00
11,700.00	90.12	179.73	7,344.32	-4,068.15	468.42	4,094.62	0.00	0.00	0.00	0.00
11,800.00	90.12	179.73	7,344.11	-4,168.15	468.88	4,194.16	0.00	0.00	0.00	0.00
11,900.00	90.12	179.73	7,343.89	-4,268.15	469.34	4,293.70	0.00	0.00	0.00	0.00
12,000.00	90.12	179.73	7,343.67	-4,368.14	469.81	4,393.24	0.00	0.00	0.00	0.00
12,100.00	90.12	179.73	7,343.45	-4,468.14	470.27	4,492.78	0.00	0.00	0.00	0.00
12,200.00	90.12	179.73	7,343.23	-4,568.14	470.73	4,592.32	0.00	0.00	0.00	0.00
12,300.00	90.12	179.73	7,343.02	-4,668.14	471.20	4,691.86	0.00	0.00	0.00	0.00
12,307.26	90.12	179.73	7,343.00	-4,675.40	471.23	4,699.09	0.00	0.00	0.00	0.00
CodeII TL (Toe)										
12,307.27	90.12	179.73	7,343.00	-4,675.41	471.23	4,699.10	0.01	0.00	0.00	0.00
Roberts 13C-22HZ_BHL										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
500.00	500.00	0.00	0.00	Hold Angle @ 0.00
1,100.00	1,100.00	0.00	0.00	Begin Nudge @ 1100.00ft
1,300.00	1,299.84	5.38	4.45	Nudge Rate = 2.00/100ft
1,428.35	1,427.63	14.48	11.99	End Nudge @ 1428.35ft
4,000.00	3,982.41	241.01	199.55	Hold Angle @ 6.57
6,767.21	6,731.46	484.77	401.37	Begin Build @ 6767.21ft
7,100.00	7,052.01	418.88	425.35	Build Rate = 10.00/100ft
7,718.80	7,353.00	-87.00	450.00	End Build @ 7718.80ft
10,000.00	7,348.03	-2,368.17	460.55	Hold Angle @ 90.12
12,307.27	7,343.00	-4,675.41	471.23	Total Depth @ 12307.27ft

Plan Report for Roberts 13C-22HZ - 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	Roberts 13C-22HZ_BHL	174.24	Slot	0.00	0.00	7,343.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	12,307.27	Plan A Rev 0 Permit	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,718.80	7,353.00	7" Intermediate Casing	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
751.00	751.00	Fox Hills		0.00	
3,883.83	3,867.00	Parkman		0.00	
4,435.45	4,415.00	Sussex		0.00	
7,057.54	7,014.00	Sharon Springs		0.00	
7,123.00	7,072.00	Niobrara A		0.00	
7,173.27	7,114.00	Niobrara B		0.00	
7,283.89	7,197.00	Niobrara C		0.00	
7,550.89	7,329.00	Fort Hays		0.00	
7,718.80	7,353.00	Codell		0.00	
7,718.80	7,353.00	Codell TL (Heel)		0.00	
12,307.26	7,343.00	Codell TL (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
Roberts 13C-22HZ_Setback Lines	0.00	0.00	0.00	Polygon
Roberts 13C-22HZ_Casing Point	7,353.00	-87.00	450.00	Point
Roberts 13C-22HZ_Section Lines	0.00	0.00	0.00	Polygon
Roberts 13C-22HZ_BHL	7,343.00	-4,675.41	471.23	Point
Roberts 13C-22HZ_SHL	0.00	0.00	0.00	Point

North Reference Sheet for Sec. 22-T3N-R66W - Roberts 13C-22HZ - 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 @ 4902.00ft (Drilling Rig). Northing and Easting are relative to Roberts 13C-22HZ

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: 0.99995703

Grid Coordinates of Well: 1,322,477.51 ft N, 3,203,497.29 ft E

Geographical Coordinates of Well: 40° 12' 58.69" N, 104° 46' 16.69" W

Grid Convergence at Surface is: 0.47°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,307.27ft
the Bottom Hole Displacement is 4,699.10ft in the Direction of 174.24° (True).

Magnetic Convergence at surface is: -8.26° (17 September 2012, , BGGM2012)

