

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 13-T3N-R66W

BROTEMARKLE 29C-13HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

Sperry Drilling Services

Proposal Report

26 September, 2012

Well Coordinates: 1,323,520.32 N, 3,215,741.70 E (40° 13' 07.97" N, 104° 43' 38.74" W)

Ground Level: 5,033.00 ft

Local Coordinate Origin: Centered on Well BROTEMARKLE 29C-13HZ

Viewing Datum: RKB=16 @ 5049.00ft (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. 13-T3N-R66W
Well: BROTEMARKLE 29C-13HZ
Wellbore: Plan A Rev 0
Design: Plan A Rev 0 Permit

Anadarko Petroleum Corp.

HALLIBURTON
Sperry Drilling

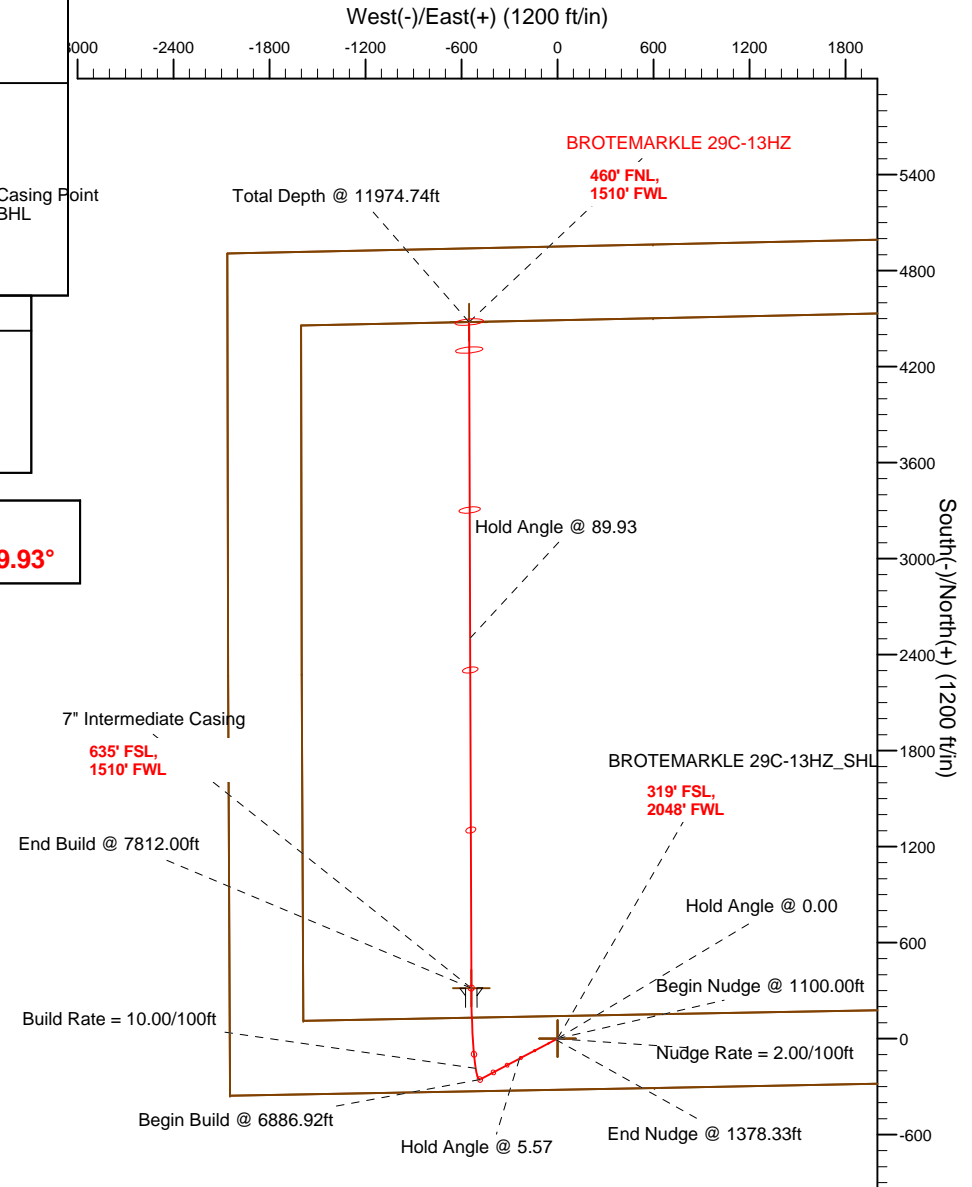
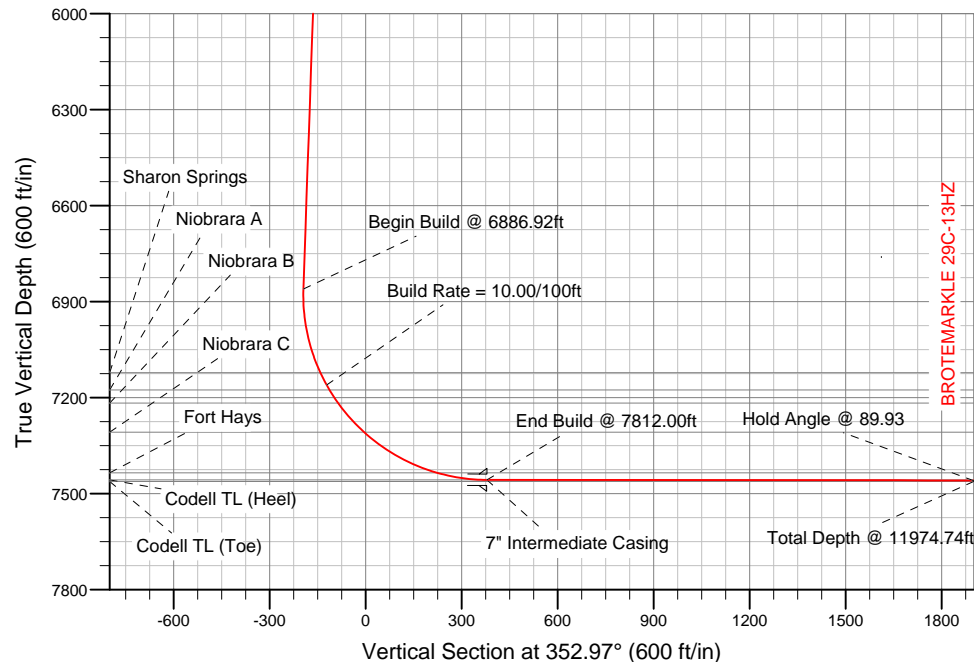
SECTION DETAILS

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	1378.33	5.57	242.20	1377.89	-6.30	-11.95	2.00	242.20	-4.79	
4	6886.92	5.57	242.20	6860.50	-255.52	-484.62	0.00	0.00	-194.32	
5	7812.00	89.93	359.81	7457.00	316.00	-538.00	10.00	117.50	379.44	BROTEMARKLE 29C-13HZ_Casing Point
6	11974.74	89.93	359.81	7462.00	4478.72	-552.01	0.00	0.00	4512.61	BROTEMARKLE 29C-13HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
BROTEMARKLE 29C-13HZ_Section Lines	0.00	0.00	0.00	40.218881	-104.727427	Polygon
BROTEMARKLE 29C-13HZ_Setback Lines	0.00	0.00	0.00	40.218881	-104.727427	Polygon
BROTEMARKLE 29C-13HZ_SHL	0.00	0.00	0.00	40.218881	-104.727427	Point
BROTEMARKLE 29C-13HZ_Casing Point	7457.00	316.00	-538.00	40.219748	-104.729354	Point
BROTEMARKLE 29C-13HZ_BHL	7462.00	4478.72	-552.01	40.231175	-104.729404	Point

Target Line:
7456.49' TVDkb @ 0° VS Drilling 89.93°



WELL DETAILS: BROTEMARKLE 29C-13HZ

Ground Level 5033.00 RKB=16 @ 5049.00ft (Drilling Rig)

Plan: Plan A Rev 0 Permit (BROTEMARKLE 29C-13HZ/Plan A Rev 0)

Created By: Fred Hartmann

Date: 09/26/2012

Reviewed: _____

Date: _____

Plan Report for BROTEMARKLE 29C-13HZ - 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
BROTEMARKLE 29C-13HZ_SHL - BROTEMARKLE 29C-13HZ_Section Lines - BROTEMARKLE 29C-13HZ_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
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hold Angle @ 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
Fox Hills										
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	242.20	1,199.98	-0.81	-1.54	-0.62	2.00	2.00	0.00	242.20
Nudge Rate = 2.00/100ft										
1,300.00	4.00	242.20	1,299.84	-3.25	-6.17	-2.48	2.00	2.00	0.00	0.00
1,378.33	5.57	242.20	1,377.89	-6.30	-11.95	-4.79	2.00	2.00	0.00	0.00
End Nudge @ 1378.33ft										
1,400.00	5.57	242.20	1,399.46	-7.28	-13.81	-5.54	0.00	0.00	0.00	0.00
1,500.00	5.57	242.20	1,498.99	-11.81	-22.39	-8.98	0.00	0.00	0.00	0.00
1,600.00	5.57	242.20	1,598.52	-16.33	-30.97	-12.42	0.00	0.00	0.00	0.00
1,700.00	5.57	242.20	1,698.05	-20.85	-39.55	-15.86	0.00	0.00	0.00	0.00
1,800.00	5.57	242.20	1,797.57	-25.38	-48.13	-19.30	0.00	0.00	0.00	0.00
1,900.00	5.57	242.20	1,897.10	-29.90	-56.71	-22.74	0.00	0.00	0.00	0.00
2,000.00	5.57	242.20	1,996.63	-34.43	-65.29	-26.18	0.00	0.00	0.00	0.00
2,100.00	5.57	242.20	2,096.16	-38.95	-73.87	-29.62	0.00	0.00	0.00	0.00
2,200.00	5.57	242.20	2,195.69	-43.47	-82.46	-33.06	0.00	0.00	0.00	0.00
2,300.00	5.57	242.20	2,295.22	-48.00	-91.04	-36.50	0.00	0.00	0.00	0.00
2,400.00	5.57	242.20	2,394.74	-52.52	-99.62	-39.94	0.00	0.00	0.00	0.00
2,500.00	5.57	242.20	2,494.27	-57.05	-108.20	-43.38	0.00	0.00	0.00	0.00
2,600.00	5.57	242.20	2,593.80	-61.57	-116.78	-46.82	0.00	0.00	0.00	0.00
2,700.00	5.57	242.20	2,693.33	-66.10	-125.36	-50.26	0.00	0.00	0.00	0.00
2,800.00	5.57	242.20	2,792.86	-70.62	-133.94	-53.70	0.00	0.00	0.00	0.00
2,900.00	5.57	242.20	2,892.39	-75.14	-142.52	-57.15	0.00	0.00	0.00	0.00
3,000.00	5.57	242.20	2,991.91	-79.67	-151.10	-60.59	0.00	0.00	0.00	0.00
3,100.00	5.57	242.20	3,091.44	-84.19	-159.68	-64.03	0.00	0.00	0.00	0.00
3,200.00	5.57	242.20	3,190.97	-88.72	-168.26	-67.47	0.00	0.00	0.00	0.00
3,300.00	5.57	242.20	3,290.50	-93.24	-176.84	-70.91	0.00	0.00	0.00	0.00
3,400.00	5.57	242.20	3,390.03	-97.76	-185.42	-74.35	0.00	0.00	0.00	0.00
3,500.00	5.57	242.20	3,489.56	-102.29	-194.00	-77.79	0.00	0.00	0.00	0.00
3,600.00	5.57	242.20	3,589.09	-106.81	-202.58	-81.23	0.00	0.00	0.00	0.00
3,700.00	5.57	242.20	3,688.61	-111.34	-211.16	-84.67	0.00	0.00	0.00	0.00
3,800.00	5.57	242.20	3,788.14	-115.86	-219.74	-88.11	0.00	0.00	0.00	0.00
3,900.00	5.57	242.20	3,887.67	-120.38	-228.33	-91.55	0.00	0.00	0.00	0.00
4,000.00	5.57	242.20	3,987.20	-124.91	-236.91	-94.99	0.00	0.00	0.00	0.00
Hold Angle @ 5.57										
4,014.87	5.57	242.20	4,002.00	-125.58	-238.18	-95.50	0.00	0.00	0.00	0.00
Parkman										
4,100.00	5.57	242.20	4,086.73	-129.43	-245.49	-98.43	0.00	0.00	0.00	0.00
4,200.00	5.57	242.20	4,186.26	-133.96	-254.07	-101.87	0.00	0.00	0.00	0.00
4,300.00	5.57	242.20	4,285.78	-138.48	-262.65	-105.31	0.00	0.00	0.00	0.00
4,400.00	5.57	242.20	4,385.31	-143.01	-271.23	-108.75	0.00	0.00	0.00	0.00
4,500.00	5.57	242.20	4,484.84	-147.53	-279.81	-112.19	0.00	0.00	0.00	0.00
4,546.38	5.57	242.20	4,531.00	-149.63	-283.79	-113.79	0.00	0.00	0.00	0.00
Sussex										

Plan Report for BROTEMARKLE 29C-13HZ - 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 (°)
4,600.00	5.57	242.20	4,584.37	-152.05	-288.39	-115.63	0.00	0.00	0.00	0.00
4,700.00	5.57	242.20	4,683.90	-156.58	-296.97	-119.07	0.00	0.00	0.00	0.00
4,800.00	5.57	242.20	4,783.43	-161.10	-305.55	-122.51	0.00	0.00	0.00	0.00
4,900.00	5.57	242.20	4,882.95	-165.63	-314.13	-125.96	0.00	0.00	0.00	0.00
5,000.00	5.57	242.20	4,982.48	-170.15	-322.71	-129.40	0.00	0.00	0.00	0.00
5,100.00	5.57	242.20	5,082.01	-174.67	-331.29	-132.84	0.00	0.00	0.00	0.00
5,200.00	5.57	242.20	5,181.54	-179.20	-339.87	-136.28	0.00	0.00	0.00	0.00
5,300.00	5.57	242.20	5,281.07	-183.72	-348.45	-139.72	0.00	0.00	0.00	0.00
5,400.00	5.57	242.20	5,380.60	-188.25	-357.03	-143.16	0.00	0.00	0.00	0.00
5,500.00	5.57	242.20	5,480.13	-192.77	-365.62	-146.60	0.00	0.00	0.00	0.00
5,600.00	5.57	242.20	5,579.65	-197.29	-374.20	-150.04	0.00	0.00	0.00	0.00
5,700.00	5.57	242.20	5,679.18	-201.82	-382.78	-153.48	0.00	0.00	0.00	0.00
5,800.00	5.57	242.20	5,778.71	-206.34	-391.36	-156.92	0.00	0.00	0.00	0.00
5,900.00	5.57	242.20	5,878.24	-210.87	-399.94	-160.36	0.00	0.00	0.00	0.00
6,000.00	5.57	242.20	5,977.77	-215.39	-408.52	-163.80	0.00	0.00	0.00	0.00
6,100.00	5.57	242.20	6,077.30	-219.92	-417.10	-167.24	0.00	0.00	0.00	0.00
6,200.00	5.57	242.20	6,176.82	-224.44	-425.68	-170.68	0.00	0.00	0.00	0.00
6,300.00	5.57	242.20	6,276.35	-228.96	-434.26	-174.12	0.00	0.00	0.00	0.00
6,400.00	5.57	242.20	6,375.88	-233.49	-442.84	-177.56	0.00	0.00	0.00	0.00
6,500.00	5.57	242.20	6,475.41	-238.01	-451.42	-181.00	0.00	0.00	0.00	0.00
6,600.00	5.57	242.20	6,574.94	-242.54	-460.00	-184.44	0.00	0.00	0.00	0.00
6,700.00	5.57	242.20	6,674.47	-247.06	-468.58	-187.88	0.00	0.00	0.00	0.00
6,800.00	5.57	242.20	6,773.99	-251.58	-477.16	-191.33	0.00	0.00	0.00	0.00
6,886.92	5.57	242.20	6,860.50	-255.52	-484.62	-194.32	0.00	0.00	0.00	0.00
Begin Build @ 6886.92ft										
6,900.00	5.10	255.38	6,873.53	-255.96	-485.75	-194.62	10.00	-3.60	100.76	117.50
7,000.00	10.02	330.55	6,972.82	-249.49	-494.34	-187.14	10.00	4.92	75.18	104.38
7,100.00	19.35	345.58	7,069.48	-225.81	-502.77	-162.61	10.00	9.33	15.02	29.64
7,156.71	24.87	349.07	7,122.00	-204.99	-507.37	-141.38	10.00	9.73	6.17	15.05
Sharon Springs										
7,200.00	29.12	350.89	7,160.57	-185.64	-510.76	-121.77	10.00	9.82	4.20	11.81
Build Rate = 10.00/100ft										
7,217.82	30.87	351.51	7,176.00	-176.84	-512.12	-112.86	10.00	9.85	3.45	10.18
Niobrara A										
7,266.88	35.72	352.91	7,217.00	-150.16	-515.75	-85.94	10.00	9.88	2.87	9.65
Niobrara B										
7,300.00	39.00	353.69	7,243.32	-130.20	-518.09	-65.85	10.00	9.90	2.34	8.48
7,389.13	47.84	355.33	7,308.00	-69.28	-523.88	-4.68	10.00	9.92	1.84	7.86
Niobrara C										
7,400.00	48.92	355.50	7,315.22	-61.19	-524.53	3.44	10.00	9.93	1.54	6.67
7,500.00	58.86	356.82	7,374.08	19.32	-529.87	83.99	10.00	9.94	1.33	6.55
7,600.00	68.81	357.89	7,418.12	108.87	-533.97	173.37	10.00	9.95	1.07	5.77
7,653.10	74.10	358.40	7,435.00	159.16	-535.59	223.49	10.00	9.96	0.96	5.29
Fort Hays										
7,700.00	78.77	358.83	7,446.00	204.73	-536.69	268.85	10.00	9.96	0.91	5.13
7,800.00	88.74	359.70	7,456.86	304.00	-537.95	367.53	10.00	9.96	0.87	5.03
7,812.00	89.93	359.81	7,457.00	316.00	-538.00	379.44	10.00	9.96	0.86	4.94
Codell TL (Heel) - BROTEMARKLE 29C-13HZ Casing Point										
7,812.00	89.93	359.81	7,457.00	316.00	-538.00	379.44	10.91	10.87	0.94	4.94
End Build @ 7812.00ft - 7" Intermediate Casing										
7,900.00	89.93	359.81	7,457.11	404.00	-538.30	466.82	0.00	0.00	0.00	0.00
8,000.00	89.93	359.81	7,457.23	504.00	-538.63	566.11	0.00	0.00	0.00	0.00
8,100.00	89.93	359.81	7,457.35	604.00	-538.97	665.40	0.00	0.00	0.00	0.00
8,200.00	89.93	359.81	7,457.47	704.00	-539.31	764.69	0.00	0.00	0.00	0.00
8,300.00	89.93	359.81	7,457.59	804.00	-539.64	863.97	0.00	0.00	0.00	0.00
8,400.00	89.93	359.81	7,457.71	904.00	-539.98	963.26	0.00	0.00	0.00	0.00
8,500.00	89.93	359.81	7,457.83	1,004.00	-540.32	1,062.55	0.00	0.00	0.00	0.00
8,600.00	89.93	359.81	7,457.95	1,104.00	-540.65	1,161.84	0.00	0.00	0.00	0.00

Plan Report for BROTEMARKLE 29C-13HZ - 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 (°)
8,700.00	89.93	359.81	7,458.07	1,204.00	-540.99	1,261.13	0.00	0.00	0.00	0.00
8,800.00	89.93	359.81	7,458.19	1,304.00	-541.33	1,360.42	0.00	0.00	0.00	0.00
8,900.00	89.93	359.81	7,458.31	1,404.00	-541.66	1,459.71	0.00	0.00	0.00	0.00
9,000.00	89.93	359.81	7,458.43	1,504.00	-542.00	1,559.00	0.00	0.00	0.00	0.00
9,100.00	89.93	359.81	7,458.55	1,604.00	-542.33	1,658.29	0.00	0.00	0.00	0.00
9,200.00	89.93	359.81	7,458.67	1,703.99	-542.67	1,757.58	0.00	0.00	0.00	0.00
9,300.00	89.93	359.81	7,458.79	1,803.99	-543.01	1,856.87	0.00	0.00	0.00	0.00
9,400.00	89.93	359.81	7,458.91	1,903.99	-543.34	1,956.16	0.00	0.00	0.00	0.00
9,500.00	89.93	359.81	7,459.03	2,003.99	-543.68	2,055.45	0.00	0.00	0.00	0.00
9,600.00	89.93	359.81	7,459.15	2,103.99	-544.02	2,154.74	0.00	0.00	0.00	0.00
9,700.00	89.93	359.81	7,459.27	2,203.99	-544.35	2,254.03	0.00	0.00	0.00	0.00
9,800.00	89.93	359.81	7,459.39	2,303.99	-544.69	2,353.32	0.00	0.00	0.00	0.00
9,900.00	89.93	359.81	7,459.51	2,403.99	-545.03	2,452.61	0.00	0.00	0.00	0.00
10,000.00	89.93	359.81	7,459.63	2,503.99	-545.36	2,551.90	0.00	0.00	0.00	0.00
Hold Angle @ 89.93										
10,100.00	89.93	359.81	7,459.75	2,603.99	-545.70	2,651.19	0.00	0.00	0.00	0.00
10,200.00	89.93	359.81	7,459.87	2,703.99	-546.04	2,750.48	0.00	0.00	0.00	0.00
10,300.00	89.93	359.81	7,459.99	2,803.99	-546.37	2,849.77	0.00	0.00	0.00	0.00
10,400.00	89.93	359.81	7,460.11	2,903.99	-546.71	2,949.06	0.00	0.00	0.00	0.00
10,500.00	89.93	359.81	7,460.23	3,003.99	-547.05	3,048.34	0.00	0.00	0.00	0.00
10,600.00	89.93	359.81	7,460.35	3,103.99	-547.38	3,147.63	0.00	0.00	0.00	0.00
10,700.00	89.93	359.81	7,460.47	3,203.99	-547.72	3,246.92	0.00	0.00	0.00	0.00
10,800.00	89.93	359.81	7,460.59	3,303.98	-548.06	3,346.21	0.00	0.00	0.00	0.00
10,900.00	89.93	359.81	7,460.71	3,403.98	-548.39	3,445.50	0.00	0.00	0.00	0.00
11,000.00	89.93	359.81	7,460.83	3,503.98	-548.73	3,544.79	0.00	0.00	0.00	0.00
11,100.00	89.93	359.81	7,460.95	3,603.98	-549.07	3,644.08	0.00	0.00	0.00	0.00
11,200.00	89.93	359.81	7,461.07	3,703.98	-549.40	3,743.37	0.00	0.00	0.00	0.00
11,300.00	89.93	359.81	7,461.19	3,803.98	-549.74	3,842.66	0.00	0.00	0.00	0.00
11,400.00	89.93	359.81	7,461.31	3,903.98	-550.08	3,941.95	0.00	0.00	0.00	0.00
11,500.00	89.93	359.81	7,461.43	4,003.98	-550.41	4,041.24	0.00	0.00	0.00	0.00
11,600.00	89.93	359.81	7,461.55	4,103.98	-550.75	4,140.53	0.00	0.00	0.00	0.00
11,700.00	89.93	359.81	7,461.67	4,203.98	-551.09	4,239.82	0.00	0.00	0.00	0.00
11,800.00	89.93	359.81	7,461.79	4,303.98	-551.42	4,339.11	0.00	0.00	0.00	0.00
11,900.00	89.93	359.81	7,461.91	4,403.98	-551.76	4,438.40	0.00	0.00	0.00	0.00
11,974.74	89.93	359.81	7,462.00	4,478.72	-552.01	4,512.61	0.00	0.00	0.00	0.00
Total Depth @ 11974.74ft - BROTEMARKLE 29C-13HZ_BHL										

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
600.00	600.00	0.00	0.00	Hold Angle @ 0.00
1,100.00	1,100.00	0.00	0.00	Begin Nudge @ 1100.00ft
1,200.00	1,199.98	-0.81	-1.54	Nudge Rate = 2.00/100ft
1,378.33	1,377.89	-6.30	-11.95	End Nudge @ 1378.33ft
4,000.00	3,987.20	-124.91	-236.91	Hold Angle @ 5.57
6,886.92	6,860.50	-255.52	-484.62	Begin Build @ 6886.92ft
7,200.00	7,160.57	-185.64	-510.76	Build Rate = 10.00/100ft
7,812.00	7,457.00	316.00	-538.00	End Build @ 7812.00ft
10,000.00	7,459.63	2,503.99	-545.36	Hold Angle @ 89.93
11,974.74	7,462.00	4,478.72	-552.01	Total Depth @ 11974.74ft

Plan Report for BROTEMARKLE 29C-13HZ - 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	BROTEMARKLE 29C-13HZ_BHL	352.97	Slot	0.00	0.00	7,462.00

Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
0.00	11,974.74	Plan A Rev 0 Permit	MWD

Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,812.00	7,457.00	7" Intermediate Casing	7	8-3/4

Formation Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
800.00	800.00	Fox Hills		0.00	
4,014.87	4,002.00	Parkman		0.00	
4,546.38	4,531.00	Sussex		0.00	
7,156.71	7,122.00	Sharon Springs		0.00	
7,217.82	7,176.00	Niobrara A		0.00	
7,266.88	7,217.00	Niobrara B		0.00	
7,389.13	7,308.00	Niobrara C		0.00	
7,653.10	7,435.00	Fort Hays		0.00	
7,811.99	7,457.00	Codell TL (Heel)		0.00	
11,974.74	7,462.00	Codell TL (Toe)		0.00	

Targets associated with this wellbore

Target Name	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Shape
BROTEMARKLE 29C-13HZ_Casing Point	7,457.00	316.00	-538.00	Point
BROTEMARKLE 29C-13HZ_BHL	7,462.00	4,478.72	-552.01	Point
BROTEMARKLE 29C-13HZ_SHL	0.00	0.00	0.00	Point
BROTEMARKLE 29C-13HZ_Section Lines	0.00	0.00	0.00	Polygon
BROTEMARKLE 29C-13HZ_Setback Lines	0.00	0.00	0.00	Polygon

North Reference Sheet for Sec. 13-T3N-R66W - BROTEMARKLE 29C-13HZ - 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=16 @ 5049.00ft (Drilling Rig). Northing and Easting are relative to BROTEMARKLE 29C-13HZ
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: 0.99995700

Grid Coordinates of Well: 1,323,520.32 ft N, 3,215,741.70 ft E
Geographical Coordinates of Well: 40° 13' 07.97" N, 104° 43' 38.74" W
Grid Convergence at Surface is: 0.50°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,974.74ft
the Bottom Hole Displacement is 4,512.61ft in the Direction of 352.97° (True).

Magnetic Convergence at surface is: -8.20° (26 September 2012, , BGGM2012)

