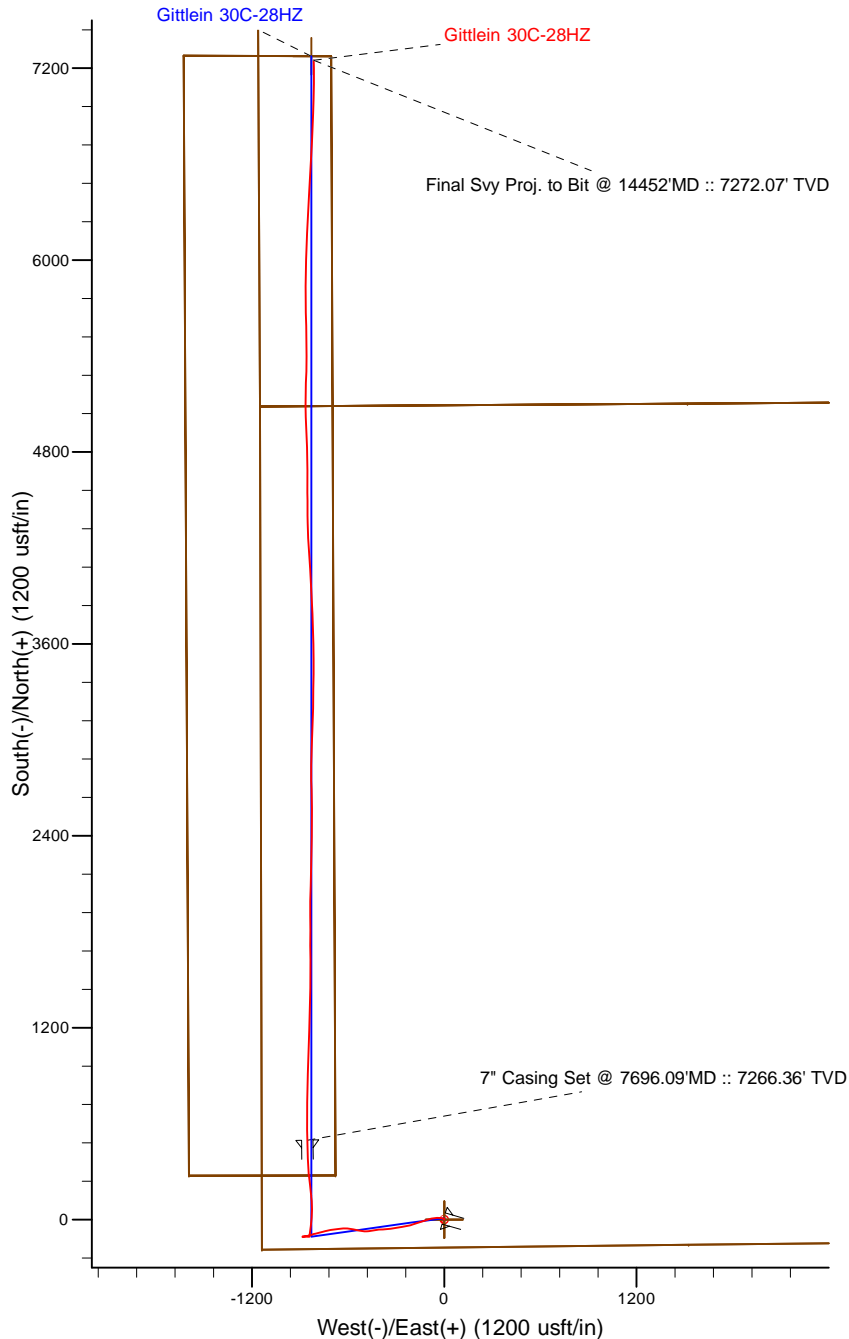
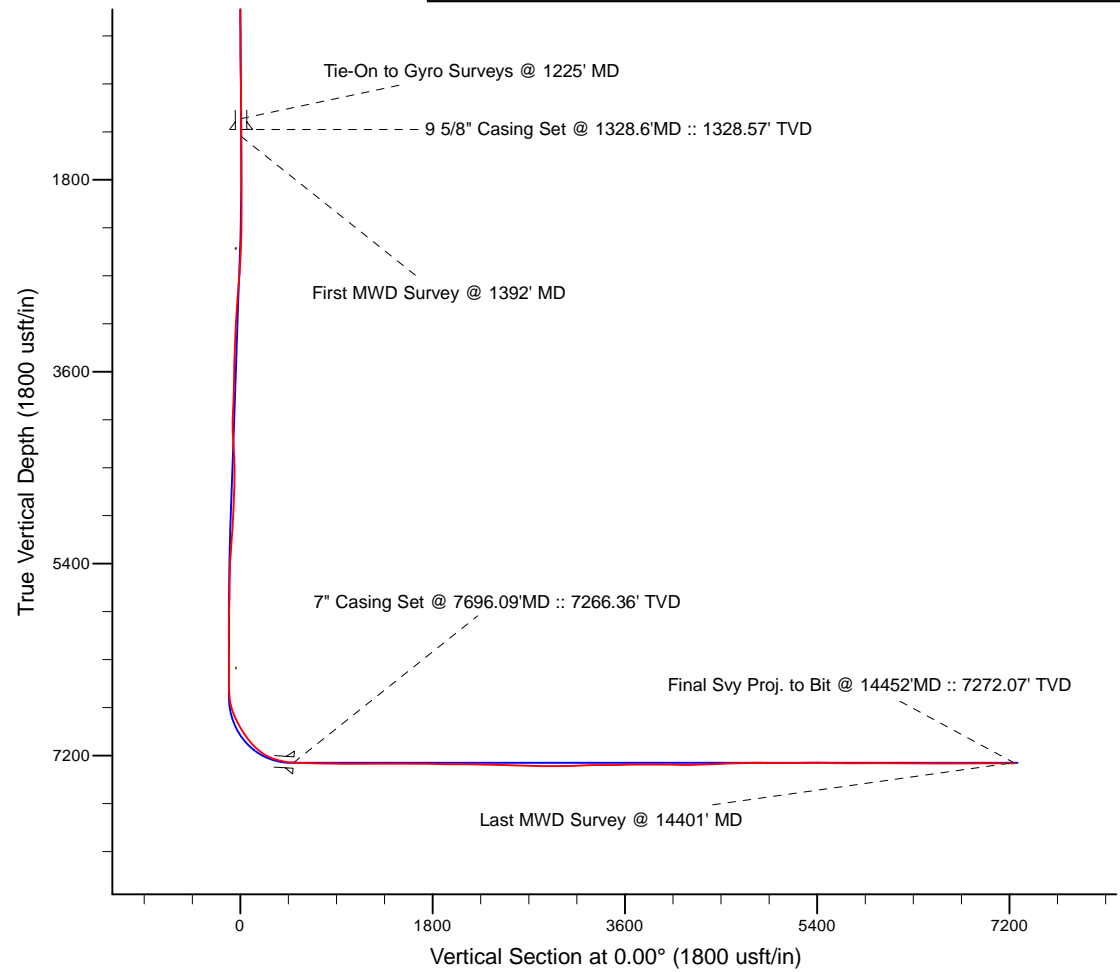


Project: Weld County, CO (NAD 83)
 Site: Sec. 33-T2N-R65W
 Well: Gittlein 30C-28HZ
 Wellbore: Plan B
 Design: Actual Field Surveys



LEGEND

- + Gittlein 30C-28HZ, Plan B, Plan B0 Proposal V0
- + Actual Field Surveys



7" Casing: ~682.95' FSL, ~284.51' FWL
 Lat/Long: 40.089642 N, -104.677264 E
 State Planes - CO Northern: 1,276,569.06' N, 3,230,186.21' E
 Location: Sec. 33-T2N-R65W

BHL: ~2162.42' FSL, ~344.77' FWL
 Lat/Long: 40.108175 N, -104.677121 E
 State Planes - CO Northern: 1,283,320.36' N, 3,230,163.71' E
 Location: Sec. 28-T2N-R65W

WELL DETAILS: Gittlein 30C-28HZ	
Ground Level:	4917.00
RKB = 25' @ 4942.00usft (H&P 308)	
Design: Actual Field Surveys (Gittlein 30C-28HZ/Plan B)	
Created By: Clint Eshelman	Date: 11/15/2013
Reviewed: _____	Date: _____

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 33-T2N-R65W

Gittlein 30C-28HZ

Plan B

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

15 November, 2013

Well Coordinates: 1,276,079.07 N, 3,231,045.24 E (40° 05' 17.79" N, 104° 40' 27.16" W)

Ground Level: 4,917.00 usft

Local Coordinate Origin:

Centered on Well Gittlein 30C-28HZ

Viewing Datum:

RKB = 25' @ 4942.00usft (H&P 308)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

HALLIBURTON

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00
125.00	0.12	5.39	125.00	0.10	0.01	0.10	0.12
225.00	0.18	324.54	225.00	0.34	-0.07	0.34	0.12
325.00	0.15	335.75	325.00	0.58	-0.22	0.58	0.04
425.00	0.34	344.39	425.00	0.99	-0.35	0.99	0.19
525.00	0.28	339.20	525.00	1.50	-0.52	1.50	0.07
625.00	0.42	349.56	624.99	2.09	-0.67	2.09	0.15
725.00	0.53	350.20	724.99	2.91	-0.81	2.91	0.11
825.00	0.61	0.12	824.99	3.90	-0.89	3.90	0.13
925.00	0.69	358.78	924.98	5.03	-0.90	5.03	0.08
1,025.00	0.48	337.06	1,024.97	6.02	-1.08	6.02	0.30
1,125.00	0.49	342.70	1,124.97	6.81	-1.37	6.81	0.05
1,225.00	0.31	305.67	1,224.97	7.38	-1.72	7.38	0.31
Tie-On to Gyro Surveys @ 1225' MD							
1,328.60	0.27	286.55	1,328.57	7.61	-2.18	7.61	0.10
9 5/8" Casing Set @ 1328.6'MD :: 1328.57' TVD							
1,392.00	0.27	273.25	1,391.97	7.66	-2.48	7.66	0.10
First MWD Survey @ 1392' MD							
1,485.00	0.59	308.37	1,484.96	7.97	-3.07	7.97	0.43
1,578.00	0.35	309.90	1,577.96	8.45	-3.66	8.45	0.26
1,672.00	0.47	301.63	1,671.96	8.84	-4.21	8.84	0.14
1,765.00	2.08	273.69	1,764.93	9.15	-6.22	9.15	1.81
1,859.00	3.20	269.09	1,858.83	9.22	-10.55	9.22	1.21
1,952.00	4.01	277.79	1,951.65	9.62	-16.37	9.62	1.05
2,046.00	6.58	273.81	2,045.24	10.42	-25.00	10.42	2.76
2,139.00	8.39	271.63	2,137.44	10.97	-37.10	10.97	1.97
2,233.00	9.12	267.86	2,230.35	10.88	-51.40	10.88	0.99
2,326.00	10.40	261.71	2,322.00	9.40	-67.07	9.40	1.77
2,419.00	10.81	256.25	2,413.42	6.11	-83.85	6.11	1.17
2,512.00	11.84	253.26	2,504.61	1.29	-101.46	1.29	1.27
2,606.00	11.24	250.19	2,596.71	-4.59	-119.31	-4.59	0.91
2,701.00	11.49	253.24	2,689.84	-10.46	-137.08	-10.46	0.69
2,795.00	12.78	252.62	2,781.74	-16.26	-155.97	-16.26	1.38
2,890.00	13.99	250.99	2,874.16	-23.14	-176.85	-23.14	1.33
2,984.00	15.07	250.19	2,965.15	-30.98	-199.09	-30.98	1.17
3,079.00	15.18	260.51	3,056.88	-37.22	-222.99	-37.22	2.83
3,173.00	14.22	259.32	3,147.80	-41.39	-246.47	-41.39	1.07
3,268.00	14.85	257.70	3,239.76	-46.15	-269.83	-46.15	0.79
3,363.00	14.90	263.92	3,331.58	-50.03	-293.87	-50.03	1.68
3,457.00	14.12	261.48	3,422.58	-53.01	-317.23	-53.01	1.05
3,552.00	12.70	257.93	3,514.99	-56.91	-338.90	-56.91	1.73
3,647.00	14.35	270.25	3,607.37	-59.04	-360.89	-59.04	3.49
3,742.00	14.40	267.20	3,699.40	-59.57	-384.46	-59.57	0.80
3,837.00	14.47	262.53	3,791.41	-61.69	-408.03	-61.69	1.23
3,932.00	15.78	259.90	3,883.11	-65.50	-432.52	-65.50	1.56
4,027.00	15.51	262.46	3,974.59	-69.43	-457.83	-69.43	0.78
4,121.00	14.36	261.42	4,065.42	-72.82	-481.81	-72.82	1.26
4,216.00	14.81	278.65	4,157.40	-72.75	-505.48	-72.75	4.58
4,311.00	18.10	284.37	4,248.50	-67.26	-531.79	-67.26	3.86

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,406.00	17.50	279.03	4,338.96	-61.36	-560.19	-61.36	1.83
4,500.00	16.56	279.05	4,428.84	-57.03	-587.38	-57.03	1.00
4,595.00	16.28	271.80	4,519.97	-54.48	-614.06	-54.48	2.18
4,689.00	15.50	264.60	4,610.39	-55.25	-639.74	-55.25	2.25
4,784.00	14.76	262.60	4,702.10	-58.00	-664.38	-58.00	0.95
4,878.00	14.48	262.50	4,793.05	-61.08	-687.90	-61.08	0.30
4,973.00	13.51	260.31	4,885.23	-64.50	-710.62	-64.50	1.16
5,068.00	14.08	256.25	4,977.49	-69.11	-732.78	-69.11	1.18
5,163.00	15.67	257.59	5,069.31	-74.62	-756.54	-74.62	1.71
5,258.00	15.07	255.72	5,160.91	-80.42	-781.03	-80.42	0.82
5,353.00	14.41	254.40	5,252.78	-86.65	-804.39	-86.65	0.78
5,447.00	13.37	251.78	5,344.03	-93.19	-825.98	-93.19	1.29
5,542.00	10.85	256.87	5,436.92	-98.66	-845.12	-98.66	2.88
5,637.00	8.40	260.26	5,530.57	-101.86	-860.67	-101.86	2.65
5,732.00	6.05	268.84	5,624.81	-103.14	-872.52	-103.14	2.72
5,826.00	2.82	266.17	5,718.52	-103.39	-879.78	-103.39	3.44
5,921.00	2.68	228.04	5,813.42	-105.03	-883.76	-105.03	1.90
6,016.00	1.11	153.38	5,908.37	-107.34	-885.00	-107.34	2.75
6,111.00	3.16	91.85	6,003.31	-108.25	-881.97	-108.25	2.95
6,206.00	4.26	82.33	6,098.11	-107.86	-875.86	-107.86	1.32
6,301.00	5.00	79.94	6,192.80	-106.67	-868.28	-106.67	0.80
6,396.00	5.62	92.39	6,287.40	-106.14	-859.56	-106.14	1.37
6,490.00	4.19	88.05	6,381.05	-106.21	-851.53	-106.21	1.57
6,585.00	3.53	88.32	6,475.83	-106.01	-845.14	-106.01	0.69
6,680.00	1.20	95.55	6,570.75	-106.02	-841.22	-106.02	2.47
6,775.00	5.73	357.81	6,665.59	-101.37	-840.41	-101.37	6.33
6,822.00	12.63	4.30	6,711.96	-93.90	-840.12	-93.90	14.82
6,870.00	17.62	10.29	6,758.28	-81.51	-838.43	-81.51	10.88
6,917.00	20.96	10.19	6,802.64	-66.23	-835.67	-66.23	7.11
6,965.00	23.30	5.92	6,847.10	-48.33	-833.17	-48.33	5.91
7,012.00	27.74	3.97	6,889.51	-28.16	-831.45	-28.16	9.61
7,060.00	31.61	4.27	6,931.20	-4.47	-829.74	-4.47	8.07
7,107.00	33.88	4.89	6,970.73	20.87	-827.71	20.87	4.88
7,154.00	34.09	3.42	7,009.70	47.07	-825.80	47.07	1.80
7,201.00	35.88	358.74	7,048.22	74.00	-825.32	74.00	6.86
7,249.00	40.87	356.12	7,085.84	103.75	-826.69	103.75	10.93
7,296.00	47.37	355.17	7,119.56	136.36	-829.19	136.36	13.90
7,344.00	51.34	353.42	7,150.82	172.58	-832.83	172.58	8.72
7,391.00	55.78	354.16	7,178.73	210.16	-836.91	210.16	9.53
7,439.00	61.78	352.90	7,203.60	250.93	-841.55	250.93	12.70
7,486.00	68.49	354.69	7,223.35	293.30	-846.14	293.30	14.69
7,534.00	74.33	357.57	7,238.65	338.67	-849.19	338.67	13.43
7,581.00	77.72	357.36	7,250.00	384.22	-851.20	384.22	7.23
7,629.00	80.96	358.69	7,258.88	431.36	-852.83	431.36	7.28
7,656.00	83.11	358.35	7,262.62	458.09	-853.52	458.09	8.06
7,696.09	86.18	358.93	7,266.36	497.99	-854.46	497.99	7.78
7" Casing Set @ 7696.09'MD :: 7266.36' TVD							
7,730.00	88.77	359.42	7,267.86	531.86	-854.95	531.86	7.78
7,791.00	88.70	359.89	7,269.20	592.84	-855.32	592.84	0.78
7,885.00	89.32	0.10	7,270.83	686.83	-855.33	686.83	0.70
7,978.00	88.58	0.99	7,272.53	779.81	-854.44	779.81	1.24

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
8,072.00	88.70	1.81	7,274.76	873.75	-852.15	873.75	0.88
8,134.00	88.70	0.79	7,276.17	935.72	-850.74	935.72	1.64
8,227.00	89.88	2.52	7,277.32	1,028.67	-848.05	1,028.67	2.25
8,321.00	90.68	1.46	7,276.86	1,122.61	-844.79	1,122.61	1.41
8,383.00	89.75	2.05	7,276.63	1,184.58	-842.89	1,184.58	1.78
8,445.00	90.49	1.57	7,276.50	1,246.54	-840.93	1,246.54	1.42
8,539.00	90.43	2.41	7,275.74	1,340.48	-837.67	1,340.48	0.90
8,632.00	90.12	1.04	7,275.30	1,433.44	-834.87	1,433.44	1.51
8,726.00	88.45	359.22	7,276.47	1,527.42	-834.66	1,527.42	2.63
8,819.00	90.62	359.03	7,277.23	1,620.40	-836.08	1,620.40	2.34
8,913.00	90.12	1.46	7,276.62	1,714.39	-835.67	1,714.39	2.64
9,006.00	89.38	359.80	7,277.02	1,807.38	-834.65	1,807.38	1.95
9,099.00	88.21	358.81	7,278.98	1,900.35	-835.78	1,900.35	1.65
9,193.00	90.06	1.31	7,280.40	1,994.33	-835.68	1,994.33	3.31
9,285.00	89.51	1.58	7,280.75	2,086.30	-833.36	2,086.30	0.67
9,379.00	88.89	0.90	7,282.06	2,180.27	-831.33	2,180.27	0.98
9,472.00	89.32	1.76	7,283.51	2,273.23	-829.17	2,273.23	1.03
9,567.00	88.46	0.39	7,285.35	2,368.19	-827.39	2,368.19	1.70
9,661.00	88.52	1.12	7,287.83	2,462.15	-826.15	2,462.15	0.78
9,756.00	88.08	359.12	7,290.65	2,557.11	-825.95	2,557.11	2.15
9,851.00	87.53	359.04	7,294.28	2,652.02	-827.47	2,652.02	0.59
9,945.00	88.76	358.16	7,297.33	2,745.94	-829.77	2,745.94	1.61
10,040.00	89.57	1.10	7,298.71	2,840.92	-830.38	2,840.92	3.21
10,135.00	91.17	1.97	7,298.10	2,935.88	-827.84	2,935.88	1.92
10,230.00	90.62	2.76	7,296.62	3,030.79	-823.92	3,030.79	1.01
10,325.00	91.85	1.18	7,294.57	3,125.70	-820.65	3,125.70	2.11
10,420.00	92.03	1.30	7,291.35	3,220.63	-818.60	3,220.63	0.23
10,515.00	91.73	1.17	7,288.23	3,315.55	-816.55	3,315.55	0.34
10,609.00	89.57	359.80	7,287.17	3,409.54	-815.75	3,409.54	2.72
10,704.00	90.62	0.04	7,287.01	3,504.53	-815.89	3,504.53	1.13
10,799.00	90.86	359.03	7,285.78	3,599.52	-816.66	3,599.52	1.09
10,894.00	90.99	357.80	7,284.25	3,694.47	-819.29	3,694.47	1.30
10,988.00	90.00	357.66	7,283.44	3,788.39	-823.01	3,788.39	1.06
11,083.00	90.19	358.19	7,283.28	3,883.33	-826.45	3,883.33	0.59
11,177.00	88.21	356.26	7,284.59	3,977.20	-831.00	3,977.20	2.94
11,272.00	89.51	356.07	7,286.48	4,071.97	-837.35	4,071.97	1.38
11,366.00	90.31	355.77	7,286.63	4,165.73	-844.04	4,165.73	0.91
11,461.00	91.30	358.35	7,285.30	4,260.58	-848.91	4,260.58	2.91
11,556.00	92.10	358.38	7,282.48	4,355.50	-851.62	4,355.50	0.84
11,651.00	92.84	0.07	7,278.38	4,450.40	-852.90	4,450.40	1.94
11,746.00	92.41	358.63	7,274.03	4,545.29	-853.98	4,545.29	1.58
11,841.00	91.55	0.61	7,270.75	4,640.23	-854.61	4,640.23	2.27
11,935.00	90.87	359.42	7,268.76	4,734.21	-854.59	4,734.21	1.46
12,030.00	89.94	358.38	7,268.09	4,829.18	-856.41	4,829.18	1.47
12,125.00	88.83	357.73	7,269.11	4,924.12	-859.63	4,924.12	1.35
12,220.00	90.00	357.70	7,270.08	5,019.04	-863.42	5,019.04	1.23
12,314.00	90.12	359.75	7,269.98	5,113.01	-865.51	5,113.01	2.18
12,409.00	90.56	2.01	7,269.42	5,207.99	-864.05	5,207.99	2.42
12,504.00	91.48	2.46	7,267.73	5,302.90	-860.35	5,302.90	1.08
12,599.00	89.81	359.61	7,266.66	5,397.87	-858.63	5,397.87	3.48
12,694.00	88.21	359.15	7,268.30	5,492.85	-859.66	5,492.85	1.75

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
12,789.00	89.51	358.22	7,270.19	5,587.80	-861.84	5,587.80	1.68
12,884.00	90.06	359.39	7,270.55	5,682.78	-863.82	5,682.78	1.36
12,978.00	89.51	359.01	7,270.90	5,776.77	-865.14	5,776.77	0.71
13,073.00	90.31	1.43	7,271.05	5,871.76	-864.77	5,871.76	2.68
13,168.00	90.25	1.11	7,270.59	5,966.73	-862.66	5,966.73	0.34
13,263.00	89.88	2.07	7,270.48	6,061.69	-860.03	6,061.69	1.08
13,358.00	90.37	2.73	7,270.27	6,156.61	-856.05	6,156.61	0.87
13,453.00	88.95	2.76	7,270.83	6,251.50	-851.50	6,251.50	1.50
13,548.00	89.82	3.34	7,271.85	6,346.36	-846.45	6,346.36	1.10
13,642.00	89.69	2.57	7,272.26	6,440.23	-841.60	6,440.23	0.83
13,737.00	89.07	3.46	7,273.28	6,535.09	-836.60	6,535.09	1.14
13,832.00	88.58	2.34	7,275.23	6,629.95	-831.80	6,629.95	1.29
13,927.00	90.87	3.00	7,275.69	6,724.84	-827.37	6,724.84	2.51
14,022.00	91.42	3.35	7,273.79	6,819.67	-822.11	6,819.67	0.69
14,117.00	91.17	1.69	7,271.64	6,914.55	-817.94	6,914.55	1.77
14,212.00	90.18	1.22	7,270.52	7,009.51	-815.53	7,009.51	1.15
14,306.00	89.94	1.02	7,270.42	7,103.49	-813.69	7,103.49	0.33
14,401.00	89.07	359.28	7,271.25	7,198.49	-813.44	7,198.49	2.05
Last MWD Survey @ 14401' MD							
14,452.00	89.07	359.28	7,272.07	7,249.47	-814.08	7,249.47	0.00
Final Svy Proj. to Bit @ 14452'MD :: 7272.07' TVD							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,225.00	1,224.97	7.38	-1.72	Tie-On to Gyro Surveys @ 1225' MD
1,392.00	1,391.97	7.66	-2.48	First MWD Survey @ 1392' MD
14,401.00	7,271.25	7,198.49	-813.44	Last MWD Survey @ 14401' MD
14,452.00	7,272.07	7,249.47	-814.08	Final Svy Proj. to Bit @ 14452'MD :: 7272.07' TVD

Vertical Section Information

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

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
25.00	1,225.00	Lightning Wireline Gyros	NS-GYRO-MS
1,225.00	7,730.00	MWD Vertical/Build Svys	MWD+SC
7,791.00	14,401.00	MWD Lateral Surveys	MWD+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,328.60	1,328.57	9 5/8" Casing Set @ 1328.6'MD :: 1328.57' TVD	9-5/8	13-1/2
7,696.09	7,266.36	7" Casing Set @ 7696.09'MD :: 7266.36' TVD	7	8-3/4

Design Report for Gittlein 30C-28HZ - Actual Field Surveys**Wellbore Targets**

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Gittlein_Sec	0.00	0.00	0.00	0.00	0.00	1,276,079.07	3,231,045.24	40.088275	-104.674210
- actual wellpath hits target center									
- Polygon									
Point 1				0.00	10,382.02	-1,172.81	1,286,449.31	3,229,775.84	
Point 2				0.00	10,379.16	1,472.35	1,286,471.08	3,232,420.81	
Point 3				0.00	10,375.91	4,117.50	1,286,492.46	3,235,065.78	
Point 4				0.00	7,747.99	4,150.82	1,283,865.07	3,235,123.56	
Point 5				0.00	5,120.09	4,184.10	1,281,237.70	3,235,181.31	
Point 6				0.00	5,102.68	1,517.87	1,281,195.46	3,232,515.46	
Point 7				0.00	5,084.64	-1,149.35	1,281,152.59	3,229,848.63	
Point 8				0.00	5,102.68	1,517.87	1,281,195.46	3,232,515.46	
Point 9				0.00	5,120.09	4,184.10	1,281,237.70	3,235,181.31	
Point 10				0.00	2,497.12	4,186.36	1,278,614.97	3,235,208.00	
Point 11				0.00	-129.96	4,190.26	1,275,988.14	3,235,236.36	
Point 12				0.00	-156.92	1,525.48	1,275,936.37	3,232,572.05	
Point 13				0.00	-188.39	-1,137.43	1,275,880.10	3,229,909.65	
Point 14				0.00	2,448.12	-1,143.39	1,278,516.34	3,229,879.14	
Point 15				0.00	5,084.64	-1,149.35	1,281,152.59	3,229,848.63	
Point 16				0.00	7,733.70	-1,161.00	1,283,801.32	3,229,812.31	
Point 17				0.00	10,382.02	-1,172.81	1,286,449.31	3,229,775.84	
Gittlein 30C-28HZ_SH	0.00	0.00	0.00	0.00	0.00	1,276,079.07	3,231,045.24	40.088275	-104.674210
- actual wellpath hits target center									
- Point									
Gittlein 30C-28HZ_LD	0.00	0.00	0.00	0.00	0.00	1,276,079.07	3,231,045.24	40.088275	-104.674210
- actual wellpath hits target center									
- Polygon									
Point 1				0.00	7,278.00	-1,625.29	1,283,341.33	3,229,352.31	
Point 2				0.00	7,274.95	-705.28	1,283,346.85	3,230,272.27	
Point 3				0.00	277.09	-678.47	1,276,349.82	3,230,364.24	
Point 4				0.00	275.90	-1,593.15	1,276,340.11	3,229,449.65	
Point 5				0.00	7,278.00	-1,625.29	1,283,341.33	3,229,352.31	
Gittlein 30C-28HZ_BH	0.00	0.00	7,268.00	7,274.57	-829.09	1,283,345.32	3,230,148.47	40.108244	-104.677174
- actual wellpath misses target center by 29.53usft at 14452.00usft MD (7272.07 TVD, 7249.47 N, -814.08 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	1.95 °/100usft	Maximum Dogleg over Survey:	14.82 °/100usft at 6,822.00 usft
Net Tortousity applicable to Plans:	1.12 °/100usft	Directional Difficulty Index:	6.668

Audit Info

North Reference Sheet for Sec. 33-T2N-R65W - Gittlein 30C-28HZ - Plan B

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB = 25' @ 4942.00usft (H&P 308). Northing and Easting are relative to Gittlein 30C-28HZ

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 -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996085

Grid Coordinates of Well: 1,276,079.07 usft N, 3,231,045.24 usft E

Geographical Coordinates of Well: 40° 05' 17.79" N, 104° 40' 27.16" W

Grid Convergence at Surface is: 0.53°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,452.00usft the Bottom Hole Displacement is 7,295.04usft in the Direction of 353.59° (True).

Magnetic Convergence at surface is: -7.99° (21 August 2013, , BGGM2013)

Magnetic Model: BGGM2013
 Date: 21-Aug-13
 Declination: 8.53°
 Inclination/Dip: 66.73°
 Field Strength: 52674

Grid North is 0.53° East of True North (Grid Convergence)
 Magnetic North is 8.53° East of True North (Magnetic Declination)
 Magnetic North is 7.99° East of Grid North (Magnetic Convergence)

To convert a True Direction to a Grid Direction, Subtract 0.53°
 To convert a Magnetic Direction to a True Direction, Add 8.53° East
 To convert a Magnetic Direction to a Grid Direction, Add 7.99°

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 33-T2N-R65W

Gittlein 30C-28HZ

Plan B

Design: Actual Field Surveys

Sperry Drilling Services

Geodetic Report

15 November, 2013

Well Coordinates: 1,276,079.07 N, 3,231,045.24 E (40° 05' 17.79" N, 104° 40' 27.16" W)

Ground Level: 4,917.00 usft

Local Coordinate Origin:

Centered on Well Gittlein 30C-28HZ

Viewing Datum:

RKB = 25' @ 4942.00usft (H&P 308)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

HALLIBURTON

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Measured			Vertical	Local Coordinates		Geographic Coordinates		UTM Coordinates	
Depth (usft)	Inclination (°)	Azimuth (°)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	40.088275	-104.674210	1,276,079.07	3,231,045.24
25.00	0.00	0.00	25.00	0.00	0.00	40.088275	-104.674210	1,276,079.07	3,231,045.24
125.00	0.12	5.39	125.00	0.10	0.01	40.088275	-104.674210	1,276,079.17	3,231,045.24
225.00	0.18	324.54	225.00	0.34	-0.07	40.088276	-104.674211	1,276,079.40	3,231,045.16
325.00	0.15	335.75	325.00	0.58	-0.22	40.088277	-104.674211	1,276,079.65	3,231,045.01
425.00	0.34	344.39	425.00	0.99	-0.35	40.088278	-104.674212	1,276,080.05	3,231,044.88
525.00	0.28	339.20	525.00	1.50	-0.52	40.088279	-104.674212	1,276,080.57	3,231,044.71
625.00	0.42	349.56	624.99	2.09	-0.67	40.088281	-104.674213	1,276,081.15	3,231,044.55
725.00	0.53	350.20	724.99	2.91	-0.81	40.088283	-104.674213	1,276,081.97	3,231,044.39
825.00	0.61	0.12	824.99	3.90	-0.89	40.088286	-104.674213	1,276,082.96	3,231,044.31
925.00	0.69	358.78	924.98	5.03	-0.90	40.088289	-104.674213	1,276,084.09	3,231,044.28
1,025.00	0.48	337.06	1,024.97	6.02	-1.08	40.088292	-104.674214	1,276,085.08	3,231,044.10
1,125.00	0.49	342.70	1,124.97	6.81	-1.37	40.088294	-104.674215	1,276,085.87	3,231,043.80
1,225.00	0.31	305.67	1,224.97	7.38	-1.72	40.088295	-104.674216	1,276,086.43	3,231,043.45
1,328.60	0.27	286.55	1,328.57	7.61	-2.18	40.088296	-104.674218	1,276,086.66	3,231,042.98
1,392.00	0.27	273.25	1,391.97	7.66	-2.48	40.088296	-104.674219	1,276,086.71	3,231,042.69
1,485.00	0.59	308.37	1,484.96	7.97	-3.07	40.088297	-104.674221	1,276,087.01	3,231,042.09
1,578.00	0.35	309.90	1,577.96	8.45	-3.66	40.088298	-104.674223	1,276,087.49	3,231,041.49
1,672.00	0.47	301.63	1,671.96	8.84	-4.21	40.088299	-104.674225	1,276,087.87	3,231,040.94
1,765.00	2.08	273.69	1,764.93	9.15	-6.22	40.088300	-104.674233	1,276,088.16	3,231,038.93
1,859.00	3.20	269.09	1,858.83	9.22	-10.55	40.088300	-104.674248	1,276,088.19	3,231,034.60
1,952.00	4.01	277.79	1,951.65	9.62	-16.37	40.088301	-104.674269	1,276,088.53	3,231,028.78
2,046.00	6.58	273.81	2,045.24	10.42	-25.00	40.088304	-104.674300	1,276,089.25	3,231,020.14
2,139.00	8.39	271.63	2,137.44	10.97	-37.10	40.088305	-104.674343	1,276,089.69	3,231,008.04
2,233.00	9.12	267.86	2,230.35	10.88	-51.40	40.088305	-104.674394	1,276,089.47	3,230,993.74
2,326.00	10.40	261.71	2,322.00	9.40	-67.07	40.088301	-104.674450	1,276,087.84	3,230,978.08
2,419.00	10.81	256.25	2,413.42	6.11	-83.85	40.088292	-104.674510	1,276,084.40	3,230,961.34
2,512.00	11.84	253.26	2,504.61	1.29	-101.46	40.088279	-104.674573	1,276,079.42	3,230,943.78
2,606.00	11.24	250.19	2,596.71	-4.59	-119.31	40.088262	-104.674637	1,276,073.37	3,230,925.98
2,701.00	11.49	253.24	2,689.84	-10.46	-137.08	40.088246	-104.674700	1,276,067.34	3,230,908.26
2,795.00	12.78	252.62	2,781.74	-16.26	-155.97	40.088230	-104.674768	1,276,061.36	3,230,889.43
2,890.00	13.99	250.99	2,874.16	-23.14	-176.85	40.088212	-104.674842	1,276,054.28	3,230,868.61
2,984.00	15.07	250.19	2,965.15	-30.98	-199.09	40.088190	-104.674922	1,276,046.23	3,230,846.45
3,079.00	15.18	260.51	3,056.88	-37.22	-222.99	40.088173	-104.675007	1,276,039.77	3,230,822.62
3,173.00	14.22	259.32	3,147.80	-41.39	-246.47	40.088161	-104.675091	1,276,035.39	3,230,799.17
3,268.00	14.85	257.70	3,239.76	-46.15	-269.83	40.088148	-104.675175	1,276,030.41	3,230,775.86
3,363.00	14.90	263.92	3,331.58	-50.03	-293.87	40.088138	-104.675261	1,276,026.30	3,230,751.85
3,457.00	14.12	261.48	3,422.58	-53.01	-317.23	40.088130	-104.675344	1,276,023.11	3,230,728.53
3,552.00	12.70	257.93	3,514.99	-56.91	-338.90	40.088119	-104.675421	1,276,019.01	3,230,706.89
3,647.00	14.35	270.25	3,607.37	-59.04	-360.89	40.088113	-104.675500	1,276,016.67	3,230,684.92
3,742.00	14.40	267.20	3,699.40	-59.57	-384.46	40.088112	-104.675584	1,276,015.92	3,230,661.36
3,837.00	14.47	262.53	3,791.41	-61.69	-408.03	40.088106	-104.675669	1,276,013.58	3,230,637.81

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
3,932.00	15.78	259.90	3,883.11	-65.50	-432.52	40.088095	-104.675756	1,276,009.55	3,230,613.36
4,027.00	15.51	262.46	3,974.59	-69.43	-457.83	40.088084	-104.675847	1,276,005.38	3,230,588.09
4,121.00	14.36	261.42	4,065.42	-72.82	-481.81	40.088075	-104.675932	1,276,001.77	3,230,564.14
4,216.00	14.81	278.65	4,157.40	-72.75	-505.48	40.088075	-104.676017	1,276,001.62	3,230,540.48
4,311.00	18.10	284.37	4,248.50	-67.26	-531.79	40.088090	-104.676111	1,276,006.86	3,230,514.12
4,406.00	17.50	279.03	4,338.96	-61.36	-560.19	40.088107	-104.676212	1,276,012.50	3,230,485.66
4,500.00	16.56	279.05	4,428.84	-57.03	-587.38	40.088118	-104.676310	1,276,016.57	3,230,458.44
4,595.00	16.28	271.80	4,519.97	-54.48	-614.06	40.088125	-104.676405	1,276,018.87	3,230,431.73
4,689.00	15.50	264.60	4,610.39	-55.25	-639.74	40.088123	-104.676497	1,276,017.87	3,230,406.07
4,784.00	14.76	262.60	4,702.10	-58.00	-664.38	40.088116	-104.676585	1,276,014.88	3,230,381.46
4,878.00	14.48	262.50	4,793.05	-61.08	-687.90	40.088107	-104.676669	1,276,011.59	3,230,357.96
4,973.00	13.51	260.31	4,885.23	-64.50	-710.62	40.088098	-104.676750	1,276,007.96	3,230,335.28
5,068.00	14.08	256.25	4,977.49	-69.11	-732.78	40.088085	-104.676829	1,276,003.14	3,230,313.16
5,163.00	15.67	257.59	5,069.31	-74.62	-756.54	40.088070	-104.676914	1,275,997.41	3,230,289.46
5,258.00	15.07	255.72	5,160.91	-80.42	-781.03	40.088054	-104.677002	1,275,991.38	3,230,265.02
5,353.00	14.41	254.40	5,252.78	-86.65	-804.39	40.088037	-104.677085	1,275,984.94	3,230,241.72
5,447.00	13.37	251.78	5,344.03	-93.19	-825.98	40.088019	-104.677162	1,275,978.20	3,230,220.19
5,542.00	10.85	256.87	5,436.92	-98.66	-845.12	40.088004	-104.677231	1,275,972.55	3,230,201.10
5,637.00	8.40	260.26	5,530.57	-101.86	-860.67	40.087995	-104.677286	1,275,969.20	3,230,185.58
5,732.00	6.05	268.84	5,624.81	-103.14	-872.52	40.087992	-104.677329	1,275,967.82	3,230,173.75
5,826.00	2.82	266.17	5,718.52	-103.39	-879.78	40.087991	-104.677355	1,275,967.49	3,230,166.49
5,921.00	2.68	228.04	5,813.42	-105.03	-883.76	40.087987	-104.677369	1,275,965.81	3,230,162.52
6,016.00	1.11	153.38	5,908.37	-107.34	-885.00	40.087980	-104.677373	1,275,963.50	3,230,161.31
6,111.00	3.16	91.85	6,003.31	-108.25	-881.97	40.087978	-104.677362	1,275,962.62	3,230,164.34
6,206.00	4.26	82.33	6,098.11	-107.86	-875.86	40.087979	-104.677341	1,275,963.06	3,230,170.45
6,301.00	5.00	79.94	6,192.80	-106.67	-868.28	40.087982	-104.677313	1,275,964.32	3,230,178.02
6,396.00	5.62	92.39	6,287.40	-106.14	-859.56	40.087984	-104.677282	1,275,964.93	3,230,186.73
6,490.00	4.19	88.05	6,381.05	-106.21	-851.53	40.087983	-104.677254	1,275,964.93	3,230,194.77
6,585.00	3.53	88.32	6,475.83	-106.01	-845.14	40.087984	-104.677231	1,275,965.20	3,230,201.16
6,680.00	1.20	95.55	6,570.75	-106.02	-841.22	40.087984	-104.677217	1,275,965.22	3,230,205.07
6,775.00	5.73	357.81	6,665.59	-101.37	-840.41	40.087997	-104.677214	1,275,969.88	3,230,205.84
6,822.00	12.63	4.30	6,711.96	-93.90	-840.12	40.088017	-104.677213	1,275,977.36	3,230,206.06
6,870.00	17.62	10.29	6,758.28	-81.51	-838.43	40.088051	-104.677207	1,275,989.76	3,230,207.64
6,917.00	20.96	10.19	6,802.64	-66.23	-835.67	40.088093	-104.677197	1,276,005.06	3,230,210.25
6,965.00	23.30	5.92	6,847.10	-48.33	-833.17	40.088142	-104.677188	1,276,022.98	3,230,212.59
7,012.00	27.74	3.97	6,889.51	-28.16	-831.45	40.088198	-104.677182	1,276,043.16	3,230,214.12
7,060.00	31.61	4.27	6,931.20	-4.47	-829.74	40.088263	-104.677176	1,276,066.88	3,230,215.61
7,107.00	33.88	4.89	6,970.73	20.87	-827.71	40.088332	-104.677168	1,276,092.23	3,230,217.40
7,154.00	34.09	3.42	7,009.70	47.07	-825.80	40.088404	-104.677162	1,276,118.45	3,230,219.06
7,201.00	35.88	358.74	7,048.22	74.00	-825.32	40.088478	-104.677160	1,276,145.38	3,230,219.29
7,249.00	40.87	356.12	7,085.84	103.75	-826.69	40.088560	-104.677165	1,276,175.11	3,230,217.64
7,296.00	47.37	355.17	7,119.56	136.36	-829.19	40.088649	-104.677174	1,276,207.69	3,230,214.84

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
7,344.00	51.34	353.42	7,150.82	172.58	-832.83	40.088749	-104.677187	1,276,243.88	3,230,210.87
7,391.00	55.78	354.16	7,178.73	210.16	-836.91	40.088852	-104.677201	1,276,281.42	3,230,206.44
7,439.00	61.78	352.90	7,203.60	250.93	-841.55	40.088964	-104.677218	1,276,322.14	3,230,201.42
7,486.00	68.49	354.69	7,223.35	293.30	-846.14	40.089080	-104.677234	1,276,364.46	3,230,196.44
7,534.00	74.33	357.57	7,238.65	338.67	-849.19	40.089205	-104.677245	1,276,409.80	3,230,192.97
7,581.00	77.72	357.36	7,250.00	384.22	-851.20	40.089330	-104.677252	1,276,455.33	3,230,190.52
7,629.00	80.96	358.69	7,258.88	431.36	-852.83	40.089459	-104.677258	1,276,502.45	3,230,188.46
7,656.00	83.11	358.35	7,262.62	458.09	-853.52	40.089533	-104.677261	1,276,529.17	3,230,187.52
7,696.09	86.18	358.93	7,266.36	497.99	-854.46	40.089642	-104.677264	1,276,569.06	3,230,186.21
7,730.00	88.77	359.42	7,267.86	531.86	-854.95	40.089735	-104.677266	1,276,602.92	3,230,185.40
7,791.00	88.70	359.89	7,269.20	592.84	-855.32	40.089902	-104.677267	1,276,663.90	3,230,184.47
7,885.00	89.32	0.10	7,270.83	686.83	-855.33	40.090160	-104.677267	1,276,757.87	3,230,183.58
7,978.00	88.58	0.99	7,272.53	779.81	-854.44	40.090416	-104.677264	1,276,850.85	3,230,183.60
8,072.00	88.70	1.81	7,274.76	873.75	-852.15	40.090674	-104.677256	1,276,944.81	3,230,185.02
8,134.00	88.70	0.79	7,276.17	935.72	-850.74	40.090844	-104.677251	1,277,006.79	3,230,185.85
8,227.00	89.88	2.52	7,277.32	1,028.67	-848.05	40.091099	-104.677241	1,277,099.75	3,230,187.67
8,321.00	90.68	1.46	7,276.86	1,122.61	-844.79	40.091357	-104.677230	1,277,193.72	3,230,190.06
8,383.00	89.75	2.05	7,276.63	1,184.58	-842.89	40.091527	-104.677223	1,277,255.70	3,230,191.38
8,445.00	90.49	1.57	7,276.50	1,246.54	-840.93	40.091697	-104.677216	1,277,317.68	3,230,192.77
8,539.00	90.43	2.41	7,275.74	1,340.48	-837.67	40.091955	-104.677204	1,277,411.64	3,230,195.15
8,632.00	90.12	1.04	7,275.30	1,433.44	-834.87	40.092210	-104.677194	1,277,504.61	3,230,197.09
8,726.00	88.45	359.22	7,276.47	1,527.42	-834.66	40.092468	-104.677193	1,277,598.59	3,230,196.43
8,819.00	90.62	359.03	7,277.23	1,620.40	-836.08	40.092723	-104.677199	1,277,691.55	3,230,194.14
8,913.00	90.12	1.46	7,276.62	1,714.39	-835.67	40.092981	-104.677197	1,277,785.54	3,230,193.67
9,006.00	89.38	359.80	7,277.02	1,807.38	-834.65	40.093236	-104.677193	1,277,878.53	3,230,193.82
9,099.00	88.21	358.81	7,278.98	1,900.35	-835.78	40.093492	-104.677198	1,277,971.48	3,230,191.83
9,193.00	90.06	1.31	7,280.40	1,994.33	-835.68	40.093750	-104.677197	1,278,065.45	3,230,191.05
9,285.00	89.51	1.58	7,280.75	2,086.30	-833.36	40.094002	-104.677189	1,278,157.44	3,230,192.52
9,379.00	88.89	0.90	7,282.06	2,180.27	-831.33	40.094260	-104.677182	1,278,251.42	3,230,193.68
9,472.00	89.32	1.76	7,283.51	2,273.23	-829.17	40.094515	-104.677174	1,278,344.39	3,230,194.97
9,567.00	88.46	0.39	7,285.35	2,368.19	-827.39	40.094776	-104.677168	1,278,439.36	3,230,195.87
9,661.00	88.52	1.12	7,287.83	2,462.15	-826.15	40.095034	-104.677163	1,278,533.32	3,230,196.23
9,756.00	88.08	359.12	7,290.65	2,557.11	-825.95	40.095294	-104.677162	1,278,628.27	3,230,195.54
9,851.00	87.53	359.04	7,294.28	2,652.02	-827.47	40.095555	-104.677168	1,278,723.17	3,230,193.14
9,945.00	88.76	358.16	7,297.33	2,745.94	-829.77	40.095813	-104.677176	1,278,817.06	3,230,189.97
10,040.00	89.57	1.10	7,298.71	2,840.92	-830.38	40.096073	-104.677178	1,278,912.02	3,230,188.47
10,135.00	91.17	1.97	7,298.10	2,935.88	-827.84	40.096334	-104.677169	1,279,007.00	3,230,190.13
10,230.00	90.62	2.76	7,296.62	3,030.79	-823.92	40.096595	-104.677155	1,279,101.93	3,230,193.16
10,325.00	91.85	1.18	7,294.57	3,125.70	-820.65	40.096855	-104.677144	1,279,196.87	3,230,195.55
10,420.00	92.03	1.30	7,291.35	3,220.63	-818.60	40.097116	-104.677136	1,279,291.81	3,230,196.72
10,515.00	91.73	1.17	7,288.23	3,315.55	-816.55	40.097376	-104.677129	1,279,386.74	3,230,197.88
10,609.00	89.57	359.80	7,287.17	3,409.54	-815.75	40.097634	-104.677126	1,279,480.73	3,230,197.80

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates		Geographic Coordinates		UTM Coordinates	
				+N/-S (usft)	+E/-W (usft)	Latitude (usft)	Longitude (usft)	Northing (usft)	Easting (usft)
10,704.00	90.62	0.04	7,287.01	3,504.53	-815.89	40.097895	-104.677127	1,279,575.72	3,230,196.78
10,799.00	90.86	359.03	7,285.78	3,599.52	-816.66	40.098156	-104.677129	1,279,670.69	3,230,195.13
10,894.00	90.99	357.80	7,284.25	3,694.47	-819.29	40.098417	-104.677139	1,279,765.61	3,230,191.61
10,988.00	90.00	357.66	7,283.44	3,788.39	-823.01	40.098674	-104.677152	1,279,859.48	3,230,187.02
11,083.00	90.19	358.19	7,283.28	3,883.33	-826.45	40.098935	-104.677164	1,279,954.38	3,230,182.69
11,177.00	88.21	356.26	7,284.59	3,977.20	-831.00	40.099193	-104.677181	1,280,048.20	3,230,177.27
11,272.00	89.51	356.07	7,286.48	4,071.97	-837.35	40.099453	-104.677203	1,280,142.90	3,230,170.04
11,366.00	90.31	355.77	7,286.63	4,165.73	-844.04	40.099710	-104.677227	1,280,236.59	3,230,162.48
11,461.00	91.30	358.35	7,285.30	4,260.58	-848.91	40.099971	-104.677245	1,280,331.40	3,230,156.72
11,556.00	92.10	358.38	7,282.48	4,355.50	-851.62	40.100231	-104.677254	1,280,426.28	3,230,153.13
11,651.00	92.84	0.07	7,278.38	4,450.40	-852.90	40.100492	-104.677259	1,280,521.16	3,230,150.96
11,746.00	92.41	358.63	7,274.03	4,545.29	-853.98	40.100752	-104.677263	1,280,616.04	3,230,149.00
11,841.00	91.55	0.61	7,270.75	4,640.23	-854.61	40.101013	-104.677265	1,280,710.96	3,230,147.49
11,935.00	90.87	359.42	7,268.76	4,734.21	-854.59	40.101271	-104.677265	1,280,804.93	3,230,146.64
12,030.00	89.94	358.38	7,268.09	4,829.18	-856.41	40.101531	-104.677272	1,280,899.88	3,230,143.93
12,125.00	88.83	357.73	7,269.11	4,924.12	-859.63	40.101792	-104.677283	1,280,994.78	3,230,139.82
12,220.00	90.00	357.70	7,270.08	5,019.04	-863.42	40.102053	-104.677297	1,281,089.65	3,230,135.15
12,314.00	90.12	359.75	7,269.98	5,113.01	-865.51	40.102311	-104.677304	1,281,183.60	3,230,132.18
12,409.00	90.56	2.01	7,269.42	5,207.99	-864.05	40.102571	-104.677299	1,281,278.58	3,230,132.76
12,504.00	91.48	2.46	7,267.73	5,302.90	-860.35	40.102832	-104.677286	1,281,373.52	3,230,135.58
12,599.00	89.81	359.61	7,266.66	5,397.87	-858.63	40.103092	-104.677280	1,281,468.50	3,230,136.41
12,694.00	88.21	359.15	7,268.30	5,492.85	-859.66	40.103353	-104.677283	1,281,563.46	3,230,134.50
12,789.00	89.51	358.22	7,270.19	5,587.80	-861.84	40.103614	-104.677291	1,281,658.38	3,230,131.43
12,884.00	90.06	359.39	7,270.55	5,682.78	-863.82	40.103875	-104.677298	1,281,753.33	3,230,128.57
12,978.00	89.51	359.01	7,270.90	5,776.77	-865.14	40.104133	-104.677303	1,281,847.30	3,230,126.38
13,073.00	90.31	1.43	7,271.05	5,871.76	-864.77	40.104393	-104.677302	1,281,942.29	3,230,125.86
13,168.00	90.25	1.11	7,270.59	5,966.73	-862.66	40.104654	-104.677294	1,282,037.27	3,230,127.08
13,263.00	89.88	2.07	7,270.48	6,061.69	-860.03	40.104915	-104.677285	1,282,132.25	3,230,128.83
13,358.00	90.37	2.73	7,270.27	6,156.61	-856.05	40.105175	-104.677271	1,282,227.20	3,230,131.93
13,453.00	88.95	2.76	7,270.83	6,251.50	-851.50	40.105436	-104.677254	1,282,322.12	3,230,135.59
13,548.00	89.82	3.34	7,271.85	6,346.36	-846.45	40.105696	-104.677236	1,282,417.02	3,230,139.76
13,642.00	89.69	2.57	7,272.26	6,440.23	-841.60	40.105954	-104.677219	1,282,510.93	3,230,143.73
13,737.00	89.07	3.46	7,273.28	6,535.09	-836.60	40.106214	-104.677201	1,282,605.83	3,230,147.85
13,832.00	88.58	2.34	7,275.23	6,629.95	-831.80	40.106475	-104.677184	1,282,700.72	3,230,151.77
13,927.00	90.87	3.00	7,275.69	6,724.84	-827.37	40.106735	-104.677168	1,282,795.64	3,230,155.31
14,022.00	91.42	3.35	7,273.79	6,819.67	-822.11	40.106995	-104.677149	1,282,890.52	3,230,159.68
14,117.00	91.17	1.69	7,271.64	6,914.55	-817.94	40.107256	-104.677134	1,282,985.43	3,230,162.98
14,212.00	90.18	1.22	7,270.52	7,009.51	-815.53	40.107516	-104.677126	1,283,080.41	3,230,164.50
14,306.00	89.94	1.02	7,270.42	7,103.49	-813.69	40.107774	-104.677119	1,283,174.40	3,230,165.47
14,401.00	89.07	359.28	7,271.25	7,198.49	-813.44	40.108035	-104.677118	1,283,269.39	3,230,164.83
14,452.00	89.07	359.28	7,272.07	7,249.47	-814.08	40.108175	-104.677121	1,283,320.36	3,230,163.71

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,225.00	1,224.97	7.38	-1.72	Tie-On to Gyro Surveys @ 1225' MD
1,392.00	1,391.97	7.66	-2.48	First MWD Survey @ 1392' MD
14,401.00	7,271.25	7,198.49	-813.44	Last MWD Survey @ 14401' MD
14,452.00	7,272.07	7,249.47	-814.08	Final Svy Proj. to Bit @ 14452'MD :: 7272.07' TVD

Vertical Section Information

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

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
25.00	1,225.00	Lightning Wireline Gyros	NS-GYRO-MS
1,225.00	7,730.00	MWD Vertical/Build Svys	MWD+SC
7,791.00	14,401.00	MWD Lateral Surveys	MWD+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,328.60	1,328.57	9 5/8" Casing Set @ 1328.6'MD :: 1328.57' TVD	9-5/8	13-1/2
7,696.09	7,266.36	7" Casing Set @ 7696.09'MD :: 7266.36' TVD	7	8-3/4

Design Report for Gittlein 30C-28HZ - Actual Field Surveys

Design Targets

Shape	Target Name	TVD (usft)	Northing (usft)	Easting (usft)	+N/-S usft	+E/-W usft	Created	Updated
Polygon	Gittlein_Sec	0.00	1,276,079.07	3,231,045.24	0.00	0.00	8/21/2013	8/22/2013
Point	Gittlein 30C-28HZ_SHL	0.00	1,276,079.07	3,231,045.24	0.00	0.00	8/21/2013	8/22/2013
Polygon	Gittlein 30C-28HZ_LD	0.00	1,276,079.07	3,231,045.24	0.00	0.00	8/22/2013	8/22/2013
Point	Gittlein 30C-28HZ_BHL	7,268.00	1,283,345.32	3,230,148.47	7,274.57	-829.09	8/21/2013	9/6/2013

Directional Difficulty Index

Average Dogleg over Survey:	1.95 °/100usft	Maximum Dogleg over Survey:	14.82 °/100usft at 6,822.00 usft
Net Tortosity applicable to Plans:	1.12 °/100usft	Directional Difficulty Index:	6.668

Audit Info

North Reference Sheet for Sec. 33-T2N-R65W - Gittlein 30C-28HZ - Plan B

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB = 25' @ 4942.00usft (H&P 308). Northing and Easting are relative to Gittlein 30C-28HZ

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 -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996085

Grid Coordinates of Well: 1,276,079.07 usft N, 3,231,045.24 usft E

Geographical Coordinates of Well: 40° 05' 17.79" N, 104° 40' 27.16" W

Grid Convergence at Surface is: 0.53°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,452.00usft

the Bottom Hole Displacement is 7,295.04usft in the Direction of 353.59° (True).

Magnetic Convergence at surface is: -7.99° (21 August 2013, , BGGM2013)

