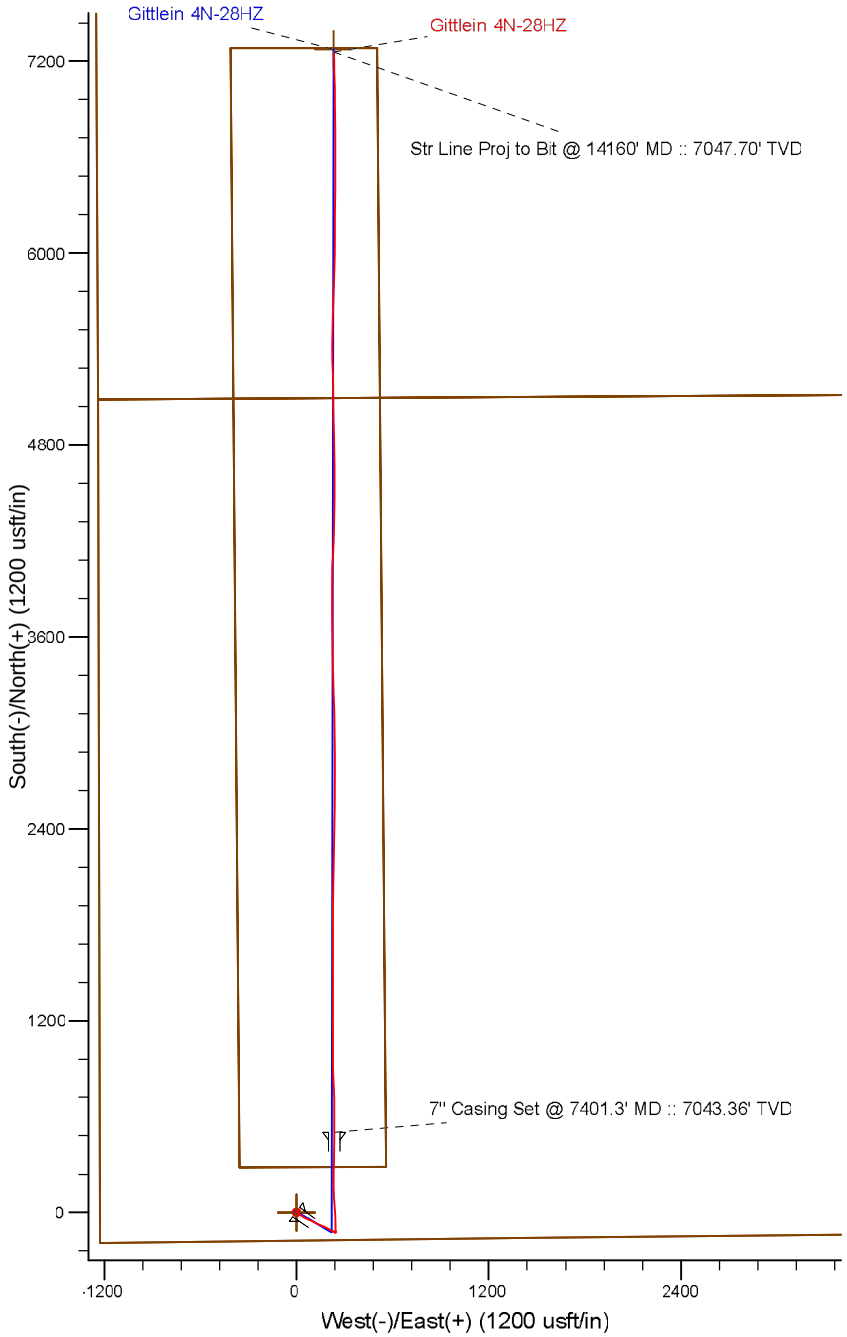
Project: Weld County, CO (NAD 83)
Site: Sec. 33-T2N-R65W
Well: Gittlein 4N-28HZ
Wellbore: Plan B
Design: Actual Field Surveys

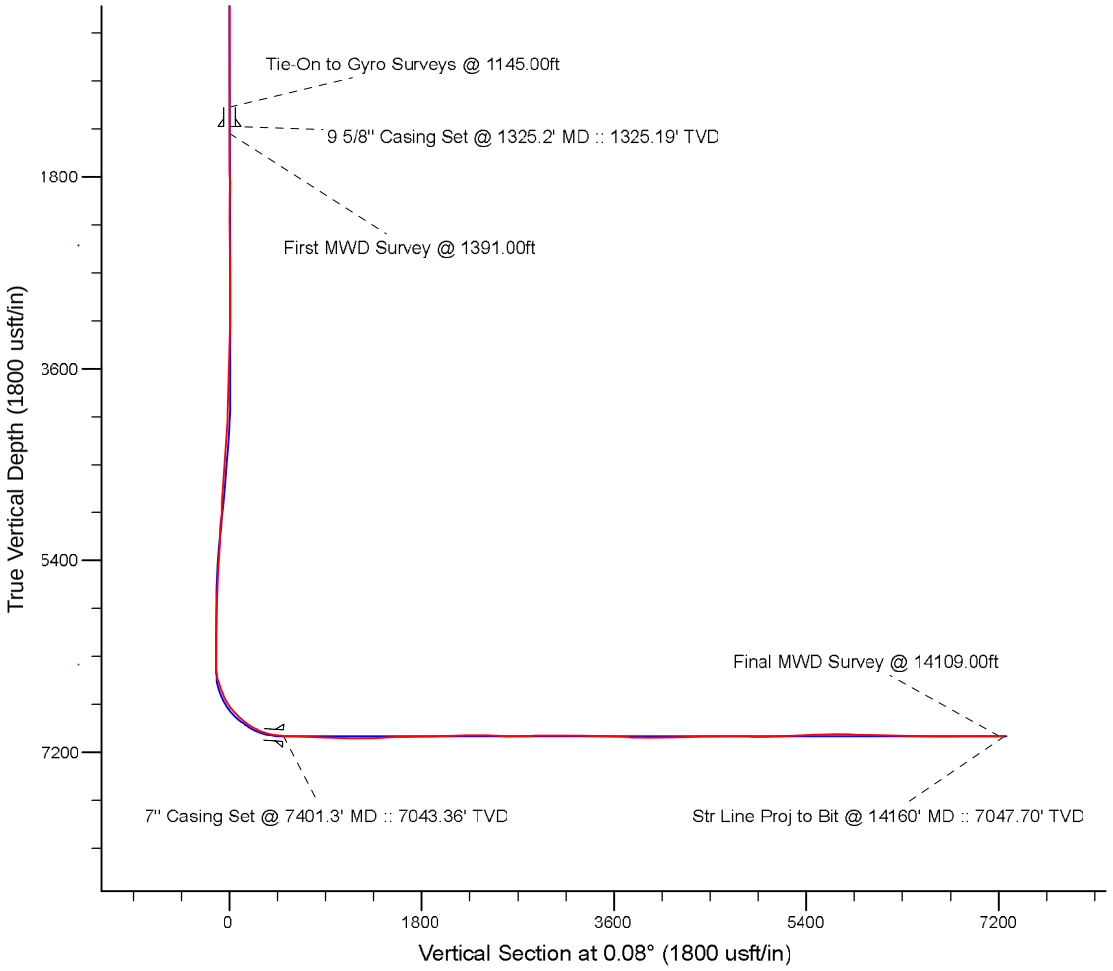
Anadarko Petroleum Corporation

HALLIBURTON
Sperry Drilling



LEGEND

Gittlein 4N-28HZ, Plan B, Plan B0 Proposal V0
Actual Field Surveys



7" Casing: ~673.76' FSL, ~1465.58' FWL
Lat/Long: 40.089655 N, -104.673043 E
State Planes - CO Northern: 1,276,584.82' N, 3,231,367.17' E
Location: Sec. 33-T2N-R65W

BHL: ~2163.44' FSL, ~1481.73' FWL
Lat/Long: 40.108199 N, -104.673056 E
State Planes - CO Northern: 1,283,339.65' N, 3,231,300.51' E
Location: Sec. 28-T2N-R65W

WELL DETAILS Gittlein 4N-28HZ

Ground Level: 4917.00
RKB = 25' @ 4942.00usft (H&P 308)

Design: Actual Field Surveys (Gittlein 4N-28HZ/Plan B)

Created By: Clint Eshelman Date: 12/4/2013
Reviewed: Date:

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)
Sec. 33-T2N-R65W
Gittlein 4N-28HZ

Plan B

Design: Actual Field Surveys

Sperry Drilling Services

Standard Report

04 December, 2013

Well Coordinates: 1,276,081.00 N, 3,231,135.31 E (40° 05' 17.80" N, 104° 40' 26.00" W)
Ground Level: 4,917.00 usft

Local Coordinate Origin:	Centered on Well Gittlein 4N-28HZ
Viewing Datum:	RKB = 25' @ 4942.00usft (H&P 308)
TVDs to System:	N
North Reference:	True
Unit System:	API - US Survey Feet - Custom

Geodetic Scale Factor Applied
Version: 5000.1 Build: 70

HALLIBURTON

Design Report for Gittlein 4N-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	0.27	88.63	125.00	0.01	0.24	0.01	0.27
225.00	0.21	82.25	225.00	0.04	0.65	0.04	0.07
325.00	0.18	42.89	325.00	0.18	0.94	0.18	0.13
425.00	0.14	20.76	425.00	0.41	1.09	0.41	0.07
525.00	0.43	339.63	525.00	0.87	1.00	0.87	0.34
625.00	0.30	331.21	624.99	1.45	0.75	1.45	0.14
725.00	0.33	304.75	724.99	1.85	0.38	1.85	0.15
825.00	0.28	312.97	824.99	2.18	-0.03	2.18	0.07
925.00	0.19	321.03	924.99	2.47	-0.31	2.47	0.10
1,025.00	0.29	284.39	1,024.99	2.66	-0.66	2.66	0.18
1,125.00	0.14	329.16	1,124.99	2.83	-0.97	2.83	0.21
1,145.00	0.14	318.02	1,144.99	2.87	-1.00	2.87	0.14
Tie-On to Gyro Surveys @ 1145.00ft							
1,325.20	0.17	304.71	1,325.19	3.18	-1.36	3.18	0.03
9 5/8" Casing Set @ 1325.2' MD :: 1325.19' TVD							
1,391.00	0.18	300.96	1,390.99	3.29	-1.53	3.29	0.03
First MWD Survey @ 1391.00ft							
1,484.00	0.32	287.56	1,483.99	3.45	-1.91	3.44	0.16
1,577.00	0.41	292.51	1,576.99	3.65	-2.46	3.65	0.10
1,671.00	0.39	292.82	1,670.98	3.91	-3.07	3.90	0.02
1,764.00	0.17	285.46	1,763.98	4.06	-3.49	4.06	0.24
1,858.00	0.19	317.08	1,857.98	4.22	-3.73	4.21	0.11
1,951.00	0.49	141.31	1,950.98	4.02	-3.59	4.01	0.73
2,045.00	0.22	112.21	2,044.98	3.64	-3.17	3.63	0.34
2,138.00	0.17	113.30	2,137.98	3.51	-2.88	3.51	0.05
2,232.00	0.25	62.56	2,231.98	3.55	-2.57	3.55	0.21
2,325.00	0.20	55.56	2,324.98	3.74	-2.25	3.74	0.06
2,418.00	0.46	32.76	2,417.98	4.14	-1.92	4.14	0.31
2,511.00	0.57	4.69	2,510.97	4.92	-1.68	4.92	0.29
2,605.00	0.81	77.57	2,604.97	5.53	-0.99	5.53	0.90
2,699.00	0.59	72.19	2,698.96	5.82	0.12	5.82	0.24
2,794.00	0.47	67.17	2,793.96	6.12	0.94	6.12	0.14
2,888.00	0.96	81.12	2,887.95	6.39	2.08	6.39	0.55
2,983.00	1.09	85.29	2,982.93	6.59	3.76	6.59	0.16
3,077.00	0.90	74.96	3,076.92	6.85	5.37	6.86	0.28
3,171.00	1.48	98.31	3,170.90	6.87	7.28	6.88	0.79
3,266.00	1.79	136.72	3,265.86	5.61	9.51	5.63	1.17
3,360.00	2.37	154.74	3,359.80	2.79	11.35	2.80	0.92
3,455.00	2.18	149.45	3,454.73	-0.55	13.11	-0.53	0.30
3,549.00	2.04	153.81	3,548.66	-3.59	14.75	-3.57	0.23
3,644.00	1.78	148.75	3,643.61	-6.37	16.27	-6.34	0.33
3,739.00	1.62	138.39	3,738.57	-8.63	17.92	-8.61	0.36
3,833.00	1.37	134.95	3,832.54	-10.42	19.60	-10.39	0.28
3,928.00	3.16	115.82	3,927.46	-12.36	22.76	-12.33	2.02
4,022.00	3.60	124.71	4,021.30	-15.17	27.52	-15.13	0.73
4,116.00	6.14	124.82	4,114.95	-19.72	34.07	-19.67	2.70
4,211.00	7.58	125.12	4,209.27	-26.23	43.37	-26.17	1.52
4,305.00	7.85	118.40	4,302.42	-32.85	54.09	-32.77	1.00

Design Report for Gittlein 4N-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,400.00	8.48	114.59	4,396.45	-38.85	66.16	-38.76	0.87
4,495.00	8.70	116.21	4,490.39	-44.94	78.98	-44.83	0.34
4,589.00	8.28	117.14	4,583.36	-51.16	91.38	-51.04	0.47
4,684.00	8.91	114.99	4,677.29	-57.39	104.14	-57.25	0.74
4,778.00	8.90	115.38	4,770.16	-63.58	117.30	-63.42	0.07
4,872.00	8.16	113.33	4,863.12	-69.34	130.00	-69.16	0.85
4,967.00	9.55	112.39	4,956.98	-75.02	143.48	-74.82	1.47
5,061.00	8.65	112.24	5,049.80	-80.66	157.23	-80.44	0.96
5,155.00	8.11	117.02	5,142.80	-86.35	169.68	-86.11	0.94
5,250.00	7.45	115.63	5,236.92	-92.06	181.20	-91.80	0.72
5,344.00	8.01	122.08	5,330.07	-98.17	192.25	-97.90	1.10
5,439.00	6.56	119.00	5,424.30	-104.32	202.60	-104.04	1.58
5,533.00	5.67	116.01	5,517.76	-108.96	211.47	-108.66	1.01
5,628.00	4.97	111.79	5,612.36	-112.54	219.51	-112.24	0.84
5,722.00	4.14	107.64	5,706.06	-115.08	226.53	-114.77	0.95
5,817.00	3.49	127.92	5,800.85	-117.90	232.07	-117.58	1.57
5,911.00	2.24	139.86	5,894.73	-121.06	235.52	-120.73	1.47
6,006.00	1.35	126.74	5,989.69	-123.15	237.61	-122.82	1.03
6,100.00	1.77	116.94	6,083.65	-124.47	239.79	-124.14	0.53
6,195.00	0.96	61.47	6,178.63	-124.76	241.80	-124.42	1.54
6,289.00	1.27	65.94	6,272.61	-123.96	243.44	-123.62	0.34
6,384.00	1.02	76.75	6,367.59	-123.33	245.23	-122.99	0.35
6,431.00	0.89	71.37	6,414.58	-123.12	245.98	-122.78	0.34
6,478.00	6.96	357.65	6,461.46	-120.15	246.21	-119.81	14.39
6,525.00	14.70	352.92	6,507.59	-111.38	245.36	-111.04	16.56
6,573.00	18.43	356.66	6,553.59	-97.75	244.16	-97.41	8.08
6,620.00	19.85	0.22	6,597.99	-82.36	243.76	-82.02	3.91
6,667.00	20.87	1.50	6,642.06	-66.01	244.01	-65.67	2.37
6,714.00	24.85	0.51	6,685.36	-47.76	244.32	-47.41	8.51
6,762.00	31.13	356.03	6,727.73	-25.27	243.55	-24.93	13.79
6,809.00	37.34	354.40	6,766.56	1.06	241.31	1.40	13.35
6,856.00	41.40	355.26	6,802.89	30.75	238.64	31.08	8.72
6,903.00	43.75	357.09	6,837.50	62.47	236.53	62.80	5.65
6,951.00	47.34	358.16	6,871.11	96.70	235.12	97.03	7.65
6,998.00	50.62	358.11	6,901.95	132.14	233.96	132.46	6.98
7,046.00	54.19	358.77	6,931.23	170.15	232.93	170.47	7.52
7,093.00	59.05	0.82	6,957.09	209.38	232.81	209.71	10.96
7,140.00	62.12	0.69	6,980.17	250.31	233.35	250.64	6.54
7,187.00	67.36	0.26	7,000.22	292.80	233.70	293.13	11.18
7,235.00	73.51	1.19	7,016.28	338.01	234.28	338.33	12.94
7,282.00	77.85	1.52	7,027.91	383.52	235.36	383.85	9.26
7,329.00	81.03	0.46	7,036.52	429.71	236.15	430.04	7.12
7,359.00	84.60	0.34	7,040.27	459.47	236.36	459.80	11.91
7,401.30	87.02	0.18	7,043.36	501.65	236.55	501.98	5.73
7" Casing Set @ 7401.3' MD :: 7043.36' TVD							
7,427.00	88.49	0.09	7,044.37	527.33	236.61	527.66	5.73
7,521.00	88.43	359.11	7,046.89	621.30	235.96	621.62	1.04
7,616.00	88.33	358.71	7,049.58	716.24	234.15	716.57	0.43
7,708.00	87.56	358.40	7,052.88	808.15	231.83	808.47	0.90
7,801.00	87.13	359.23	7,057.19	901.03	229.91	901.35	1.00
7,895.00	87.90	359.65	7,061.26	994.94	228.99	995.26	0.93

Design Report for Gittlein 4N-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
7,988.00	89.11	0.25	7,063.69	1,087.90	228.91	1,088.22	1.45
8,082.00	91.11	0.38	7,063.51	1,181.90	229.43	1,182.22	2.13
8,175.00	90.62	359.88	7,062.10	1,274.89	229.64	1,275.20	0.75
8,269.00	89.75	359.27	7,061.80	1,368.88	228.94	1,369.20	1.13
8,362.00	93.08	0.40	7,059.50	1,461.84	228.68	1,462.16	3.78
8,456.00	91.97	0.35	7,055.36	1,555.74	229.29	1,556.06	1.18
8,549.00	90.43	359.70	7,053.41	1,648.72	229.33	1,649.04	1.80
8,642.00	89.91	358.98	7,053.14	1,741.71	228.26	1,742.03	0.95
8,736.00	91.64	359.47	7,051.87	1,835.69	226.99	1,836.01	1.91
8,829.00	92.62	0.19	7,048.41	1,928.62	226.71	1,928.94	1.31
8,923.00	93.12	1.14	7,043.70	2,022.50	227.80	2,022.81	1.14
9,016.00	92.28	2.01	7,039.32	2,115.36	230.35	2,115.68	1.30
9,110.00	90.25	1.61	7,037.25	2,209.28	233.32	2,209.61	2.20
9,203.00	88.71	0.65	7,038.09	2,302.26	235.16	2,302.58	1.95
9,296.00	88.92	1.33	7,040.02	2,395.22	236.76	2,395.55	0.77
9,389.00	88.34	0.75	7,042.24	2,488.18	238.45	2,488.51	0.88
9,483.00	89.11	359.67	7,044.33	2,582.15	238.80	2,582.49	1.41
9,577.00	89.63	359.77	7,045.36	2,676.15	238.34	2,676.48	0.56
9,671.00	92.07	0.84	7,043.97	2,770.13	238.84	2,770.46	2.83
9,766.00	91.08	359.52	7,041.36	2,865.09	239.13	2,865.42	1.74
9,861.00	89.07	359.03	7,041.23	2,960.07	237.93	2,960.40	2.18
9,956.00	89.45	359.41	7,042.46	3,055.06	236.64	3,055.39	0.57
10,050.00	89.94	358.79	7,042.96	3,149.04	235.16	3,149.37	0.84
10,145.00	90.09	358.67	7,042.94	3,244.02	233.06	3,244.34	0.20
10,240.00	88.74	358.42	7,043.91	3,338.98	230.64	3,339.30	1.45
10,335.00	87.38	359.26	7,047.12	3,433.91	228.72	3,434.22	1.68
10,430.00	88.92	359.18	7,050.19	3,528.84	227.43	3,529.16	1.62
10,525.00	89.01	359.28	7,051.91	3,623.82	226.15	3,624.13	0.14
10,620.00	87.72	358.59	7,054.62	3,718.76	224.39	3,719.07	1.54
10,714.00	88.92	0.16	7,057.37	3,812.71	223.36	3,813.02	2.10
10,809.00	90.34	0.72	7,057.99	3,907.70	224.09	3,908.01	1.61
10,904.00	89.97	0.26	7,057.73	4,002.70	224.91	4,003.01	0.62
10,999.00	90.25	1.77	7,057.55	4,097.68	226.59	4,097.99	1.62
11,093.00	91.91	2.53	7,055.77	4,191.60	230.11	4,191.91	1.94
11,188.00	92.59	2.15	7,052.04	4,286.44	233.99	4,286.77	0.82
11,282.00	90.99	1.05	7,049.11	4,380.36	236.61	4,380.68	2.07
11,376.00	90.89	0.46	7,047.57	4,474.33	237.85	4,474.66	0.64
11,471.00	90.31	0.07	7,046.57	4,569.33	238.29	4,569.66	0.74
11,566.00	89.72	359.44	7,046.55	4,664.33	237.88	4,664.65	0.91
11,661.00	89.20	358.94	7,047.44	4,759.31	236.54	4,759.64	0.76
11,756.00	88.15	358.11	7,049.64	4,854.25	234.10	4,854.57	1.41
11,851.00	89.48	358.87	7,051.60	4,949.20	231.59	4,949.51	1.61
11,946.00	91.23	359.91	7,051.01	5,044.18	230.58	5,044.50	2.14
12,040.00	92.53	359.33	7,047.93	5,138.13	229.96	5,138.45	1.51
12,135.00	92.44	358.83	7,043.81	5,233.03	228.44	5,233.34	0.53
12,230.00	92.87	358.19	7,039.41	5,327.89	225.97	5,328.20	0.81
12,325.00	92.31	359.93	7,035.12	5,422.78	224.41	5,423.09	1.92
12,420.00	91.05	1.12	7,032.33	5,517.73	225.28	5,518.04	1.82
12,514.00	90.43	1.64	7,031.12	5,611.69	227.55	5,612.01	0.86
12,609.00	89.51	2.19	7,031.17	5,706.64	230.72	5,706.96	1.13
12,704.00	89.41	2.04	7,032.06	5,801.57	234.23	5,801.89	0.19

Design Report for Gittlein 4N-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
12,799.00	89.08	1.22	7,033.32	5,896.52	236.93	5,896.85	0.93
12,894.00	88.74	0.68	7,035.12	5,991.49	238.50	5,991.82	0.67
12,989.00	88.46	0.20	7,037.44	6,086.46	239.23	6,086.79	0.58
13,083.00	88.12	359.58	7,040.25	6,180.42	239.05	6,180.75	0.75
13,178.00	87.87	0.78	7,043.57	6,275.36	239.35	6,275.69	1.29
13,273.00	87.90	1.54	7,047.08	6,370.27	241.27	6,370.60	0.80
13,368.00	90.00	0.68	7,048.82	6,465.23	243.11	6,465.57	2.39
13,463.00	89.20	359.65	7,049.48	6,560.23	243.39	6,560.56	1.37
13,558.00	90.99	0.60	7,049.33	6,655.22	243.59	6,655.56	2.13
13,653.00	89.72	359.10	7,048.74	6,750.22	243.34	6,750.55	2.07
13,748.00	90.96	0.01	7,048.17	6,845.21	242.61	6,845.54	1.62
13,842.00	89.85	358.34	7,047.51	6,939.19	241.25	6,939.52	2.13
13,937.00	90.03	358.42	7,047.61	7,034.15	238.57	7,034.48	0.21
14,032.00	90.15	358.75	7,047.46	7,129.12	236.22	7,129.45	0.37
14,109.00	89.78	358.36	7,047.51	7,206.10	234.28	7,206.42	0.70
Final MWD Survey @ 14109.00ft							
14,160.00	89.78	358.36	7,047.70	7,257.08	232.82	7,257.40	0.00
Str Line Proj to Bit @ 14160' MD :: 7047.70' TVD							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,145.00	1,144.99	2.87	-1.00	Tie-On to Gyro Surveys @ 1145.00ft
1,391.00	1,390.99	3.29	-1.53	First MWD Survey @ 1391.00ft
14,109.00	7,047.51	7,206.10	234.28	Final MWD Survey @ 14109.00ft
14,160.00	7,047.70	7,257.08	232.82	Str Line Proj to Bit @ 14160' MD :: 7047.70' TVD

Vertical Section Information

	Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User		No Target (Freehand)	0.08	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
25.00	1,145.00	Lightning Gyro Surveys	NS-GYRO-MS
1,391.00	7,427.00	MWD Vertical/Build Surveys	MWD+IFR1+SC
7,521.00	14,109.00	MWD Lateral Surveys	MWD+IFR1+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,325.20	1,325.19	9 5/8" Casing Set @ 1325.2' MD :: 1325.19' TVD	9-5/8	13-1/2
7,401.30	7,043.36	7" Casing Set @ 7401.3' MD :: 7043.36' TVD	7	8-3/4

Design Report for Gittlein 4N-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 4N-28HZ_Sec	0.00	0.00	0.00	0.00	0.00	1,276,081.00	3,231,135.31	40° 5' 17.801 N	104° 40' 25.997 W
- actual wellpath hits target center									
- Polygon									
Point 1				0.00	10,382.03	-1,172.78	1,286,451.25	3,229,865.92	
Point 2				0.00	10,379.15	1,472.38	1,286,473.01	3,232,510.88	
Point 3				0.00	10,375.89	4,117.53	1,286,494.40	3,235,155.85	
Point 4				0.00	7,747.97	4,150.84	1,283,867.00	3,235,213.63	
Point 5				0.00	5,120.08	4,184.12	1,281,239.64	3,235,271.39	
Point 6				0.00	5,102.67	1,517.88	1,281,197.39	3,232,605.53	
Point 7				0.00	5,084.64	-1,149.33	1,281,154.52	3,229,938.71	
Point 8				0.00	5,102.67	1,517.88	1,281,197.39	3,232,605.53	
Point 9				0.00	5,120.08	4,184.12	1,281,239.64	3,235,271.39	
Point 10				0.00	2,497.10	4,186.37	1,278,616.90	3,235,298.08	
Point 11				0.00	-129.97	4,190.26	1,275,990.08	3,235,326.44	
Point 12				0.00	-156.92	1,525.48	1,275,938.31	3,232,662.13	
Point 13				0.00	-188.39	-1,137.43	1,275,882.03	3,229,999.73	
Point 14				0.00	2,448.13	-1,143.38	1,278,518.28	3,229,969.22	
Point 15				0.00	5,084.64	-1,149.33	1,281,154.52	3,229,938.71	
Point 16				0.00	7,733.71	-1,160.98	1,283,803.26	3,229,902.39	
Point 17				0.00	10,382.03	-1,172.78	1,286,451.25	3,229,865.92	
Gittlein 4N-28HZ_LD	0.00	0.00	0.00	0.00	0.00	1,276,081.00	3,231,135.31	40° 5' 17.801 N	104° 40' 25.997 W
- actual wellpath hits target center									
- Polygon									
Point 1				0.00	7,279.58	-411.37	1,283,356.15	3,230,656.16	
Point 2				0.00	7,283.55	502.74	1,283,368.64	3,231,570.16	
Point 3				0.00	286.91	559.64	1,276,373.10	3,231,692.24	
Point 4				0.00	283.78	-353.96	1,276,361.46	3,230,778.74	
Point 5				0.00	7,279.58	-411.37	1,283,356.15	3,230,656.16	
Gittlein 4N-28HZ_SHL	0.00	0.00	0.00	0.00	0.00	1,276,081.01	3,231,135.31	40° 5' 17.801 N	104° 40' 25.997 W
- actual wellpath hits target center									
- Point									
Gittlein 4N-28HZ_BHL	0.00	0.00	7,047.00	7,274.52	231.05	1,283,357.08	3,231,298.58	40° 6' 29.689 N	104° 40' 23.023 W
- actual wellpath misses target center by 17.55usft at 14160.00usft MD (7047.70 TVD, 7257.08 N, 232.82 E)									
- Point									

Directional Difficulty Index

Average Dogleg over Survey:	1.51 °/100usft	Maximum Dogleg over Survey:	16.56 °/100usft at 6,525.00 usft
Net Tortousity applicable to Plans:	0.71 °/100usft	Directional Difficulty Index:	6.517

Audit Info

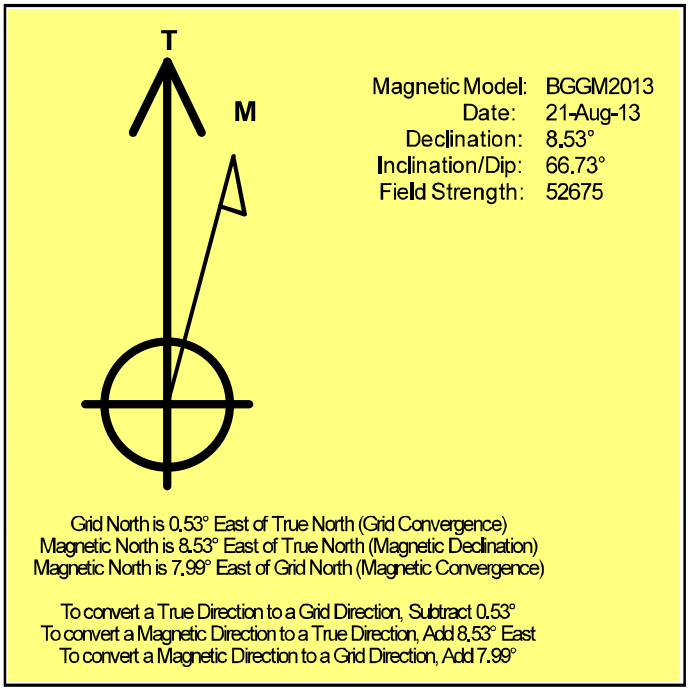
North Reference Sheet for Sec. 33-T2N-R65W - Gittlein 4N-28HZ - Plan B

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 4N-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° 30' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:40° 47' 0.000 N°
False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996085

Grid Coordinates of Well: 1,276,081.00 usft N, 3,231,135.31 usft E
Geographical Coordinates of Well: 40° 05' 17.80" N, 104° 40' 26.00" W
Grid Convergence at Surface is: 0.53°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,160.00usft
the Bottom Hole Displacement is 7,260.81usft in the Direction of 1.84° (True).

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



Anadarko Petroleum Corp.

Weld County, CO (NAD 83)
Sec. 33-T2N-R65W
Gittlein 4N-28HZ

Plan B

Design: Actual Field Surveys

Sperry Drilling Services

Geodetic Report

04 December, 2013

Well Coordinates: 1,276,081.00 N, 3,231,135.31 E (40° 05' 17.80" N, 104° 40' 26.00" W)
Ground Level: 4,917.00 usft

Local Coordinate Origin:	Centered on Well Gittlein 4N-28HZ
Viewing Datum:	RKB = 25' @ 4942.00usft (H&P 308)
TVDs to System:	N
North Reference:	True
Unit System:	API - US Survey Feet - Custom

Geodetic Scale Factor Applied
Version: 5000.1 Build: 70

HALLIBURTON

Design Report for Gittlein 4N-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Geographic Coordinates Latitude	Geographic Coordinates Longitude	UTM Coordinates Northing (usft)	UTM Coordinates Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	40° 5' 17.801 N	104° 40' 25.997 W	1,276,081.00	3,231,135.31
25.00	0.00	0.00	25.00	0.00	0.00	40° 5' 17.801 N	104° 40' 25.997 W	1,276,081.00	3,231,135.31
125.00	0.27	88.63	125.00	0.01	0.24	40° 5' 17.801 N	104° 40' 25.994 W	1,276,081.01	3,231,135.55
225.00	0.21	82.25	225.00	0.04	0.65	40° 5' 17.801 N	104° 40' 25.988 W	1,276,081.05	3,231,135.97
325.00	0.18	42.89	325.00	0.18	0.94	40° 5' 17.802 N	104° 40' 25.985 W	1,276,081.19	3,231,136.25
425.00	0.14	20.76	425.00	0.41	1.09	40° 5' 17.805 N	104° 40' 25.983 W	1,276,081.42	3,231,136.40
525.00	0.43	339.63	525.00	0.87	1.00	40° 5' 17.809 N	104° 40' 25.984 W	1,276,081.89	3,231,136.31
625.00	0.30	331.21	624.99	1.45	0.75	40° 5' 17.815 N	104° 40' 25.987 W	1,276,082.46	3,231,136.05
725.00	0.33	304.75	724.99	1.85	0.38	40° 5' 17.819 N	104° 40' 25.992 W	1,276,082.85	3,231,135.68
825.00	0.28	312.97	824.99	2.18	-0.03	40° 5' 17.822 N	104° 40' 25.997 W	1,276,083.18	3,231,135.26
925.00	0.19	321.03	924.99	2.47	-0.31	40° 5' 17.825 N	104° 40' 26.001 W	1,276,083.47	3,231,134.98
1,025.00	0.29	284.39	1,024.99	2.66	-0.66	40° 5' 17.827 N	104° 40' 26.005 W	1,276,083.66	3,231,134.63
1,125.00	0.14	329.16	1,124.99	2.83	-0.97	40° 5' 17.829 N	104° 40' 26.009 W	1,276,083.83	3,231,134.32
1,145.00	0.14	318.02	1,144.99	2.87	-1.00	40° 5' 17.829 N	104° 40' 26.010 W	1,276,083.87	3,231,134.29
1,325.20	0.17	304.71	1,325.19	3.18	-1.36	40° 5' 17.832 N	104° 40' 26.014 W	1,276,084.18	3,231,133.92
1,391.00	0.18	300.96	1,390.99	3.29	-1.53	40° 5' 17.833 N	104° 40' 26.017 W	1,276,084.28	3,231,133.75
1,484.00	0.32	287.56	1,483.99	3.45	-1.91	40° 5' 17.835 N	104° 40' 26.021 W	1,276,084.43	3,231,133.38
1,577.00	0.41	292.51	1,576.99	3.65	-2.46	40° 5' 17.837 N	104° 40' 26.028 W	1,276,084.63	3,231,132.82
1,671.00	0.39	292.82	1,670.98	3.91	-3.07	40° 5' 17.839 N	104° 40' 26.036 W	1,276,084.88	3,231,132.21
1,764.00	0.17	285.46	1,763.98	4.06	-3.49	40° 5' 17.841 N	104° 40' 26.042 W	1,276,085.04	3,231,131.79
1,858.00	0.19	317.08	1,857.98	4.22	-3.73	40° 5' 17.842 N	104° 40' 26.045 W	1,276,085.19	3,231,131.54
1,951.00	0.49	141.31	1,950.98	4.02	-3.59	40° 5' 17.840 N	104° 40' 26.043 W	1,276,084.99	3,231,131.69
2,045.00	0.22	112.21	2,044.98	3.64	-3.17	40° 5' 17.837 N	104° 40' 26.038 W	1,276,084.61	3,231,132.11
2,138.00	0.17	113.30	2,137.98	3.51	-2.88	40° 5' 17.835 N	104° 40' 26.034 W	1,276,084.49	3,231,132.40
2,232.00	0.25	62.56	2,231.98	3.55	-2.57	40° 5' 17.836 N	104° 40' 26.030 W	1,276,084.53	3,231,132.71
2,325.00	0.20	55.56	2,324.98	3.74	-2.25	40° 5' 17.838 N	104° 40' 26.026 W	1,276,084.72	3,231,133.03
2,418.00	0.46	32.76	2,417.98	4.14	-1.92	40° 5' 17.842 N	104° 40' 26.021 W	1,276,085.13	3,231,133.36
2,511.00	0.57	4.69	2,510.97	4.92	-1.68	40° 5' 17.849 N	104° 40' 26.018 W	1,276,085.91	3,231,133.59
2,605.00	0.81	77.57	2,604.97	5.53	-0.99	40° 5' 17.855 N	104° 40' 26.010 W	1,276,086.52	3,231,134.27
2,699.00	0.59	72.19	2,698.96	5.82	0.12	40° 5' 17.858 N	104° 40' 25.995 W	1,276,086.83	3,231,135.38
2,794.00	0.47	67.17	2,793.96	6.12	0.94	40° 5' 17.861 N	104° 40' 25.985 W	1,276,087.13	3,231,136.20
2,888.00	0.96	81.12	2,887.95	6.39	2.08	40° 5' 17.864 N	104° 40' 25.970 W	1,276,087.42	3,231,137.33
2,983.00	1.09	85.29	2,982.93	6.59	3.76	40° 5' 17.866 N	104° 40' 25.948 W	1,276,087.63	3,231,139.02
3,077.00	0.90	74.96	3,076.92	6.85	5.37	40° 5' 17.868 N	104° 40' 25.928 W	1,276,087.91	3,231,140.62
3,171.00	1.48	98.31	3,170.90	6.87	7.28	40° 5' 17.869 N	104° 40' 25.903 W	1,276,087.94	3,231,142.53
3,266.00	1.79	136.72	3,265.86	5.61	9.51	40° 5' 17.856 N	104° 40' 25.874 W	1,276,086.71	3,231,144.78
3,360.00	2.37	154.74	3,359.80	2.79	11.35	40° 5' 17.828 N	104° 40' 25.851 W	1,276,083.90	3,231,146.64
3,455.00	2.18	149.45	3,454.73	-0.55	13.11	40° 5' 17.795 N	104° 40' 25.828 W	1,276,080.58	3,231,148.42
3,549.00	2.04	153.81	3,548.66	-3.59	14.75	40° 5' 17.765 N	104° 40' 25.807 W	1,276,077.55	3,231,150.10
3,644.00	1.78	148.75	3,643.61	-6.37	16.27	40° 5' 17.738 N	104° 40' 25.788 W	1,276,074.79	3,231,151.64
3,739.00	1.62	138.39	3,738.57	-8.63	17.92	40° 5' 17.715 N	104° 40' 25.766 W	1,276,072.54	3,231,153.32
3,833.00	1.37	134.95	3,832.54	-10.42	19.60	40° 5' 17.698 N	104° 40' 25.745 W	1,276,070.77	3,231,155.01

Design Report for Gittlein 4N-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Geographic Coordinates Latitude (usft)	Geographic Coordinates Longitude (usft)	UTM Coordinates Northing (usft)	UTM Coordinates Easting (usft)
3,928.00	3.16	115.82	3,927.46	-12.36	22.76	40° 5' 17.679 N	104° 40' 25.704 W	1,276,068.86	3,231,158.19
4,022.00	3.60	124.71	4,021.30	-15.17	27.52	40° 5' 17.651 N	104° 40' 25.643 W	1,276,066.09	3,231,162.97
4,116.00	6.14	124.82	4,114.95	-19.72	34.07	40° 5' 17.606 N	104° 40' 25.558 W	1,276,061.60	3,231,169.57
4,211.00	7.58	125.12	4,209.27	-26.23	43.37	40° 5' 17.542 N	104° 40' 25.439 W	1,276,055.18	3,231,178.92
4,305.00	7.85	118.40	4,302.42	-32.85	54.09	40° 5' 17.476 N	104° 40' 25.301 W	1,276,048.66	3,231,189.70
4,400.00	8.48	114.59	4,396.45	-38.85	66.16	40° 5' 17.417 N	104° 40' 25.146 W	1,276,042.78	3,231,201.83
4,495.00	8.70	116.21	4,490.39	-44.94	78.98	40° 5' 17.357 N	104° 40' 24.981 W	1,276,036.81	3,231,214.71
4,589.00	8.28	117.14	4,583.36	-51.16	91.38	40° 5' 17.295 N	104° 40' 24.821 W	1,276,030.70	3,231,227.16
4,684.00	8.91	114.99	4,677.29	-57.39	104.14	40° 5' 17.234 N	104° 40' 24.657 W	1,276,024.59	3,231,239.98
4,778.00	8.90	115.38	4,770.16	-63.58	117.30	40° 5' 17.172 N	104° 40' 24.488 W	1,276,018.52	3,231,253.20
4,872.00	8.16	113.33	4,863.12	-69.34	130.00	40° 5' 17.115 N	104° 40' 24.324 W	1,276,012.88	3,231,265.95
4,967.00	9.55	112.39	4,956.98	-75.02	143.48	40° 5' 17.059 N	104° 40' 24.151 W	1,276,007.33	3,231,279.48
5,061.00	8.65	112.24	5,049.80	-80.66	157.23	40° 5' 17.004 N	104° 40' 23.974 W	1,276,001.81	3,231,293.28
5,155.00	8.11	117.02	5,142.80	-86.35	169.68	40° 5' 16.947 N	104° 40' 23.814 W	1,275,996.24	3,231,305.79
5,250.00	7.45	115.63	5,236.92	-92.06	181.20	40° 5' 16.891 N	104° 40' 23.665 W	1,275,990.64	3,231,317.36
5,344.00	8.01	122.08	5,330.07	-98.17	192.25	40° 5' 16.831 N	104° 40' 23.523 W	1,275,984.63	3,231,328.46
5,439.00	6.56	119.00	5,424.30	-104.32	202.60	40° 5' 16.770 N	104° 40' 23.390 W	1,275,978.58	3,231,338.87
5,533.00	5.67	116.01	5,517.76	-108.96	211.47	40° 5' 16.724 N	104° 40' 23.276 W	1,275,974.03	3,231,347.78
5,628.00	4.97	111.79	5,612.36	-112.54	219.51	40° 5' 16.689 N	104° 40' 23.173 W	1,275,970.52	3,231,355.86
5,722.00	4.14	107.64	5,706.06	-115.08	226.53	40° 5' 16.663 N	104° 40' 23.082 W	1,275,968.04	3,231,362.89
5,817.00	3.49	127.92	5,800.85	-117.90	232.07	40° 5' 16.636 N	104° 40' 23.011 W	1,275,965.28	3,231,368.47
5,911.00	2.24	139.86	5,894.73	-121.06	235.52	40° 5' 16.604 N	104° 40' 22.967 W	1,275,962.15	3,231,371.94
6,006.00	1.35	126.74	5,989.69	-123.15	237.61	40° 5' 16.584 N	104° 40' 22.940 W	1,275,960.08	3,231,374.05
6,100.00	1.77	116.94	6,083.65	-124.47	239.79	40° 5' 16.571 N	104° 40' 22.912 W	1,275,958.78	3,231,376.25
6,195.00	0.96	61.47	6,178.63	-124.76	241.80	40° 5' 16.568 N	104° 40' 22.886 W	1,275,958.51	3,231,378.26
6,289.00	1.27	65.94	6,272.61	-123.96	243.44	40° 5' 16.576 N	104° 40' 22.865 W	1,275,959.33	3,231,379.89
6,384.00	1.02	76.75	6,367.59	-123.33	245.23	40° 5' 16.582 N	104° 40' 22.842 W	1,275,959.97	3,231,381.67
6,431.00	0.89	71.37	6,414.58	-123.12	245.98	40° 5' 16.584 N	104° 40' 22.832 W	1,275,960.19	3,231,382.42
6,478.00	6.96	357.65	6,461.46	-120.15	246.21	40° 5' 16.613 N	104° 40' 22.829 W	1,275,963.15	3,231,382.62
6,525.00	14.70	352.92	6,507.59	-111.38	245.36	40° 5' 16.700 N	104° 40' 22.840 W	1,275,971.92	3,231,381.69
6,573.00	18.43	356.66	6,553.59	-97.75	244.16	40° 5' 16.835 N	104° 40' 22.855 W	1,275,985.53	3,231,380.37
6,620.00	19.85	0.22	6,597.99	-82.36	243.76	40° 5' 16.987 N	104° 40' 22.861 W	1,276,000.93	3,231,379.82
6,667.00	20.87	1.50	6,642.06	-66.01	244.01	40° 5' 17.148 N	104° 40' 22.857 W	1,276,017.28	3,231,379.92
6,714.00	24.85	0.51	6,685.36	-47.76	244.32	40° 5' 17.329 N	104° 40' 22.853 W	1,276,035.53	3,231,380.06
6,762.00	31.13	356.03	6,727.73	-25.27	243.55	40° 5' 17.551 N	104° 40' 22.863 W	1,276,058.01	3,231,379.08
6,809.00	37.34	354.40	6,766.56	1.06	241.31	40° 5' 17.811 N	104° 40' 22.892 W	1,276,084.32	3,231,376.60
6,856.00	41.40	355.26	6,802.89	30.75	238.64	40° 5' 18.105 N	104° 40' 22.926 W	1,276,113.98	3,231,373.64
6,903.00	43.75	357.09	6,837.50	62.47	236.53	40° 5' 18.418 N	104° 40' 22.954 W	1,276,145.68	3,231,371.24
6,951.00	47.34	358.16	6,871.11	96.70	235.12	40° 5' 18.756 N	104° 40' 22.972 W	1,276,179.89	3,231,369.51
6,998.00	50.62	358.11	6,901.95	132.14	233.96	40° 5' 19.107 N	104° 40' 22.987 W	1,276,215.31	3,231,368.03
7,046.00	54.19	358.77	6,931.23	170.15	232.93	40° 5' 19.482 N	104° 40' 23.000 W	1,276,253.31	3,231,366.64
7,093.00	59.05	0.82	6,957.09	209.38	232.81	40° 5' 19.870 N	104° 40' 23.001 W	1,276,292.54	3,231,366.16

Design Report for Gittlein 4N-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Geographic Coordinates Latitude (usft)	Geographic Coordinates Longitude (usft)	UTM Coordinates Northing (usft)	UTM Coordinates Easting (usft)
7,140.00	62.12	0.69	6,980.17	250.31	233.35	40° 5' 20.274 N	104° 40' 22.994 W	1,276,333.47	3,231,366.31
7,187.00	67.36	0.26	7,000.22	292.80	233.70	40° 5' 20.694 N	104° 40' 22.990 W	1,276,375.96	3,231,366.27
7,235.00	73.51	1.19	7,016.28	338.01	234.28	40° 5' 21.141 N	104° 40' 22.982 W	1,276,421.16	3,231,366.42
7,282.00	77.85	1.52	7,027.91	383.52	235.36	40° 5' 21.591 N	104° 40' 22.969 W	1,276,466.69	3,231,367.08
7,329.00	81.03	0.46	7,036.52	429.71	236.15	40° 5' 22.047 N	104° 40' 22.958 W	1,276,512.88	3,231,367.44
7,359.00	84.60	0.34	7,040.27	459.47	236.36	40° 5' 22.341 N	104° 40' 22.956 W	1,276,542.64	3,231,367.37
7,401.30	87.02	0.18	7,043.36	501.65	236.55	40° 5' 22.758 N	104° 40' 22.953 W	1,276,584.82	3,231,367.17
7,427.00	88.49	0.09	7,044.37	527.33	236.61	40° 5' 23.012 N	104° 40' 22.952 W	1,276,610.50	3,231,367.00
7,521.00	88.43	359.11	7,046.89	621.30	235.96	40° 5' 23.940 N	104° 40' 22.961 W	1,276,704.45	3,231,365.47
7,616.00	88.33	358.71	7,049.58	716.24	234.15	40° 5' 24.879 N	104° 40' 22.984 W	1,276,799.37	3,231,362.77
7,708.00	87.56	358.40	7,052.88	808.15	231.83	40° 5' 25.787 N	104° 40' 23.014 W	1,276,891.25	3,231,359.60
7,801.00	87.13	359.23	7,057.19	901.03	229.91	40° 5' 26.705 N	104° 40' 23.039 W	1,276,984.10	3,231,356.81
7,895.00	87.90	359.65	7,061.26	994.94	228.99	40° 5' 27.633 N	104° 40' 23.050 W	1,277,077.99	3,231,355.02
7,988.00	89.11	0.25	7,063.69	1,087.90	228.91	40° 5' 28.552 N	104° 40' 23.051 W	1,277,170.95	3,231,354.07
8,082.00	91.11	0.38	7,063.51	1,181.90	229.43	40° 5' 29.480 N	104° 40' 23.045 W	1,277,264.94	3,231,353.72
8,175.00	90.62	359.88	7,062.10	1,274.89	229.64	40° 5' 30.399 N	104° 40' 23.042 W	1,277,357.92	3,231,353.06
8,269.00	89.75	359.27	7,061.80	1,368.88	228.94	40° 5' 31.328 N	104° 40' 23.051 W	1,277,451.91	3,231,351.49
8,362.00	93.08	0.40	7,059.50	1,461.84	228.68	40° 5' 32.247 N	104° 40' 23.054 W	1,277,544.85	3,231,350.35
8,456.00	91.97	0.35	7,055.36	1,555.74	229.29	40° 5' 33.175 N	104° 40' 23.047 W	1,277,638.76	3,231,350.09
8,549.00	90.43	359.70	7,053.41	1,648.72	229.33	40° 5' 34.094 N	104° 40' 23.046 W	1,277,731.72	3,231,349.27
8,642.00	89.91	358.98	7,053.14	1,741.71	228.26	40° 5' 35.013 N	104° 40' 23.060 W	1,277,824.70	3,231,347.33
8,736.00	91.64	359.47	7,051.87	1,835.69	226.99	40° 5' 35.941 N	104° 40' 23.076 W	1,277,918.66	3,231,345.18
8,829.00	92.62	0.19	7,048.41	1,928.62	226.71	40° 5' 36.860 N	104° 40' 23.080 W	1,278,011.58	3,231,344.04
8,923.00	93.12	1.14	7,043.70	2,022.50	227.80	40° 5' 37.787 N	104° 40' 23.066 W	1,278,105.46	3,231,344.26
9,016.00	92.28	2.01	7,039.32	2,115.36	230.35	40° 5' 38.705 N	104° 40' 23.033 W	1,278,198.33	3,231,345.94
9,110.00	90.25	1.61	7,037.25	2,209.28	233.32	40° 5' 39.633 N	104° 40' 22.995 W	1,278,292.28	3,231,348.04
9,203.00	88.71	0.65	7,038.09	2,302.26	235.16	40° 5' 40.552 N	104° 40' 22.971 W	1,278,385.26	3,231,349.00
9,296.00	88.92	1.33	7,040.02	2,395.22	236.76	40° 5' 41.471 N	104° 40' 22.950 W	1,278,478.24	3,231,349.75
9,389.00	88.34	0.75	7,042.24	2,488.18	238.45	40° 5' 42.389 N	104° 40' 22.929 W	1,278,571.20	3,231,350.57
9,483.00	89.11	359.67	7,044.33	2,582.15	238.80	40° 5' 43.318 N	104° 40' 22.924 W	1,278,665.17	3,231,350.04
9,577.00	89.63	359.77	7,045.36	2,676.15	238.34	40° 5' 44.247 N	104° 40' 22.930 W	1,278,759.15	3,231,348.70
9,671.00	92.07	0.84	7,043.97	2,770.13	238.84	40° 5' 45.176 N	104° 40' 22.924 W	1,278,853.13	3,231,348.33
9,766.00	91.08	359.52	7,041.36	2,865.09	239.13	40° 5' 46.114 N	104° 40' 22.920 W	1,278,948.08	3,231,347.74
9,861.00	89.07	359.03	7,041.23	2,960.07	237.93	40° 5' 47.053 N	104° 40' 22.935 W	1,279,043.05	3,231,345.65
9,956.00	89.45	359.41	7,042.46	3,055.06	236.64	40° 5' 47.991 N	104° 40' 22.952 W	1,279,138.01	3,231,343.47
10,050.00	89.94	358.79	7,042.96	3,149.04	235.16	40° 5' 48.920 N	104° 40' 22.971 W	1,279,231.98	3,231,341.12
10,145.00	90.09	358.67	7,042.94	3,244.02	233.06	40° 5' 49.859 N	104° 40' 22.998 W	1,279,326.93	3,231,338.13
10,240.00	88.74	358.42	7,043.91	3,338.98	230.64	40° 5' 50.797 N	104° 40' 23.029 W	1,279,421.86	3,231,334.84
10,335.00	87.38	359.26	7,047.12	3,433.91	228.72	40° 5' 51.735 N	104° 40' 23.054 W	1,279,516.76	3,231,332.03
10,430.00	88.92	359.18	7,050.19	3,528.84	227.43	40° 5' 52.673 N	104° 40' 23.070 W	1,279,611.68	3,231,329.85
10,525.00	89.01	359.28	7,051.91	3,623.82	226.15	40° 5' 53.612 N	104° 40' 23.087 W	1,279,706.63	3,231,327.69
10,620.00	87.72	358.59	7,054.62	3,718.76	224.39	40° 5' 54.550 N	104° 40' 23.109 W	1,279,801.55	3,231,325.04

Design Report for Gittlein 4N-28HZ - Actual Field Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Geographic Coordinates Latitude (usft)	Geographic Coordinates Longitude (usft)	UTM Coordinates Northing (usft)	UTM Coordinates Easting (usft)
10,714.00	88.92	0.16	7,057.37	3,812.71	223.36	40° 5' 55.479 N	104° 40' 23.122 W	1,279,895.48	3,231,323.14
10,809.00	90.34	0.72	7,057.99	3,907.70	224.09	40° 5' 56.417 N	104° 40' 23.113 W	1,279,990.47	3,231,322.99
10,904.00	89.97	0.26	7,057.73	4,002.70	224.91	40° 5' 57.356 N	104° 40' 23.103 W	1,280,085.47	3,231,322.91
10,999.00	90.25	1.77	7,057.55	4,097.68	226.59	40° 5' 58.295 N	104° 40' 23.081 W	1,280,180.46	3,231,323.71
11,093.00	91.91	2.53	7,055.77	4,191.60	230.11	40° 5' 59.223 N	104° 40' 23.036 W	1,280,274.40	3,231,326.36
11,188.00	92.59	2.15	7,052.04	4,286.44	233.99	40° 6' 0.160 N	104° 40' 22.986 W	1,280,369.27	3,231,329.35
11,282.00	90.99	1.05	7,049.11	4,380.36	236.61	40° 6' 1.088 N	104° 40' 22.952 W	1,280,463.20	3,231,331.10
11,376.00	90.89	0.46	7,047.57	4,474.33	237.85	40° 6' 2.017 N	104° 40' 22.936 W	1,280,557.19	3,231,331.46
11,471.00	90.31	0.07	7,046.57	4,569.33	238.29	40° 6' 2.956 N	104° 40' 22.930 W	1,280,652.17	3,231,331.02
11,566.00	89.72	359.44	7,046.55	4,664.33	237.88	40° 6' 3.894 N	104° 40' 22.936 W	1,280,747.16	3,231,329.73
11,661.00	89.20	358.94	7,047.44	4,759.31	236.54	40° 6' 4.833 N	104° 40' 22.953 W	1,280,842.13	3,231,327.50
11,756.00	88.15	358.11	7,049.64	4,854.25	234.10	40° 6' 5.771 N	104° 40' 22.984 W	1,280,937.04	3,231,324.17
11,851.00	89.48	358.87	7,051.60	4,949.20	231.59	40° 6' 6.710 N	104° 40' 23.016 W	1,281,031.95	3,231,320.78
11,946.00	91.23	359.91	7,051.01	5,044.18	230.58	40° 6' 7.648 N	104° 40' 23.029 W	1,281,126.92	3,231,318.89
12,040.00	92.53	359.33	7,047.93	5,138.13	229.96	40° 6' 8.577 N	104° 40' 23.037 W	1,281,220.85	3,231,317.39
12,135.00	92.44	358.83	7,043.81	5,233.03	228.44	40° 6' 9.514 N	104° 40' 23.057 W	1,281,315.73	3,231,314.98
12,230.00	92.87	358.19	7,039.41	5,327.89	225.97	40° 6' 10.452 N	104° 40' 23.089 W	1,281,410.56	3,231,311.63
12,325.00	92.31	359.93	7,035.12	5,422.78	224.41	40° 6' 11.390 N	104° 40' 23.109 W	1,281,505.43	3,231,309.19
12,420.00	91.05	1.12	7,032.33	5,517.73	225.28	40° 6' 12.328 N	104° 40' 23.098 W	1,281,600.38	3,231,309.18
12,514.00	90.43	1.64	7,031.12	5,611.69	227.55	40° 6' 13.256 N	104° 40' 23.068 W	1,281,694.36	3,231,310.57
12,609.00	89.51	2.19	7,031.17	5,706.64	230.72	40° 6' 14.195 N	104° 40' 23.028 W	1,281,789.32	3,231,312.86
12,704.00	89.41	2.04	7,032.06	5,801.57	234.23	40° 6' 15.133 N	104° 40' 22.982 W	1,281,884.28	3,231,315.48
12,799.00	89.08	1.22	7,033.32	5,896.52	236.93	40° 6' 16.071 N	104° 40' 22.948 W	1,281,979.25	3,231,317.29
12,894.00	88.74	0.68	7,035.12	5,991.49	238.50	40° 6' 17.010 N	104° 40' 22.927 W	1,282,074.22	3,231,317.98
12,989.00	88.46	0.20	7,037.44	6,086.46	239.23	40° 6' 17.948 N	104° 40' 22.918 W	1,282,169.19	3,231,317.83
13,083.00	88.12	359.58	7,040.25	6,180.42	239.05	40° 6' 18.877 N	104° 40' 22.920 W	1,282,263.14	3,231,316.77
13,178.00	87.87	0.78	7,043.57	6,275.36	239.35	40° 6' 19.815 N	104° 40' 22.916 W	1,282,358.07	3,231,316.19
13,273.00	87.90	1.54	7,047.08	6,370.27	241.27	40° 6' 20.753 N	104° 40' 22.892 W	1,282,453.00	3,231,317.22
13,368.00	90.00	0.68	7,048.82	6,465.23	243.11	40° 6' 21.691 N	104° 40' 22.868 W	1,282,547.97	3,231,318.18
13,463.00	89.20	359.65	7,049.48	6,560.23	243.39	40° 6' 22.630 N	104° 40' 22.865 W	1,282,642.96	3,231,317.57
13,558.00	90.99	0.60	7,049.33	6,655.22	243.59	40° 6' 23.569 N	104° 40' 22.862 W	1,282,737.95	3,231,316.89
13,653.00	89.72	359.10	7,048.74	6,750.22	243.34	40° 6' 24.508 N	104° 40' 22.865 W	1,282,832.93	3,231,315.76
13,748.00	90.96	0.01	7,048.17	6,845.21	242.61	40° 6' 25.446 N	104° 40' 22.874 W	1,282,927.91	3,231,314.13
13,842.00	89.85	358.34	7,047.51	6,939.19	241.25	40° 6' 26.375 N	104° 40' 22.892 W	1,283,021.87	3,231,311.90
13,937.00	90.03	358.42	7,047.61	7,034.15	238.57	40° 6' 27.313 N	104° 40' 22.926 W	1,283,116.80	3,231,308.33
14,032.00	90.15	358.75	7,047.46	7,129.12	236.22	40° 6' 28.252 N	104° 40' 22.957 W	1,283,211.74	3,231,305.10
14,109.00	89.78	358.36	7,047.51	7,206.10	234.28	40° 6' 29.013 N	104° 40' 22.982 W	1,283,288.69	3,231,302.45
14,160.00	89.78	358.36	7,047.70	7,257.08	232.82	40° 6' 29.516 N	104° 40' 23.000 W	1,283,339.65	3,231,300.51

Design Report for Gittlein 4N-28HZ - Actual Field Surveys

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
1,145.00	1,144.99	2.87	-1.00	Tie-On to Gyro Surveys @ 1145.00ft
1,391.00	1,390.99	3.29	-1.53	First MWD Survey @ 1391.00ft
14,109.00	7,047.51	7,206.10	234.28	Final MWD Survey @ 14109.00ft
14,160.00	7,047.70	7,257.08	232.82	Str Line Proj to Bit @ 14160' MD :: 7047.70' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	0.08	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
25.00	1,145.00	Lightning Gyro Surveys	NS-GYRO-MS
1,391.00	7,427.00	MWD Vertical/Build Surveys	MWD+IFR1+SC
7,521.00	14,109.00	MWD Lateral Surveys	MWD+IFR1+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,325.20	1,325.19	9 5/8" Casing Set @ 1325.2' MD :: 1325.19' TVD	9-5/8	13-1/2
7,401.30	7,043.36	7" Casing Set @ 7401.3' MD :: 7043.36' TVD	7	8-3/4

Design Report for Gittlein 4N-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 4N-28HZ_LD	0.00	1,276,081.00	3,231,135.31	0.00	0.00	8/22/2013	12/4/2013
Polygon	Gittlein 4N-28HZ_Sec	0.00	1,276,081.00	3,231,135.31	0.00	0.00	8/21/2013	12/4/2013
Point	Gittlein 4N-28HZ_SHL	0.00	1,276,081.01	3,231,135.31	0.00	0.00	8/21/2013	8/21/2013
Point	Gittlein 4N-28HZ_BHL	7,047.00	1,283,357.08	3,231,298.58	7,274.52	231.05	8/21/2013	9/16/2013

Directional Difficulty Index

Average Dogleg over Survey:	1.51 °/100usft	Maximum Dogleg over Survey:	16.56 °/100usft at 6,525.00 usft
Net Tortousity applicable to Plans:	0.71 °/100usft	Directional Difficulty Index:	6.517

Audit Info

North Reference Sheet for Sec. 33-T2N-R65W - Gittlein 4N-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 4N-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° 30' 0.000 W°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:40° 47' 0.000 N°

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

Grid Coordinates of Well: 1,276,081.00 usft N, 3,231,135.31 usft E
Geographical Coordinates of Well: 40° 05' 17.80" N, 104° 40' 26.00" W
Grid Convergence at Surface is: 0.53°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,160.00usft
the Bottom Hole Displacement is 7,260.81usft in the Direction of 1.84° (True).
Magnetic Convergence at surface is: -7.99° (21 August 2013, , BGGM2013)