

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 24-T2N-R67W

Gee 15C-25HZ

Plan A

Design: Actual Surveys

Sperry Drilling Services

Final Report

08 March, 2015

Well Coordinates: 1,290,419.43 N, 3,185,838.69 E (40° 07' 43.26" N, 104° 50' 07.42" W)

Ground Level: 4,859.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 73

Centered on Well Gee 15C-25HZ

RKB = 16' @ 4875.00usft (Xtreme 22)

N

True

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO (NAD 83)
 Site: Sec. 24-T2N-R67W
 Well: Gee 15C-25HZ
 Wellbore: Plan A
 Design: Actual Surveys



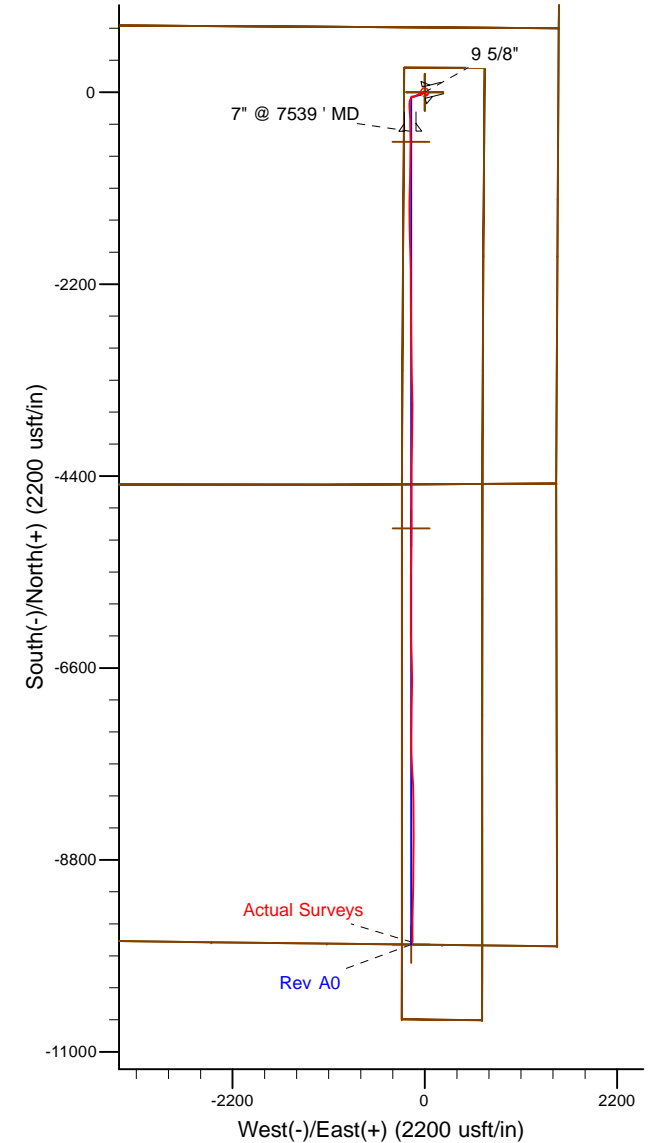
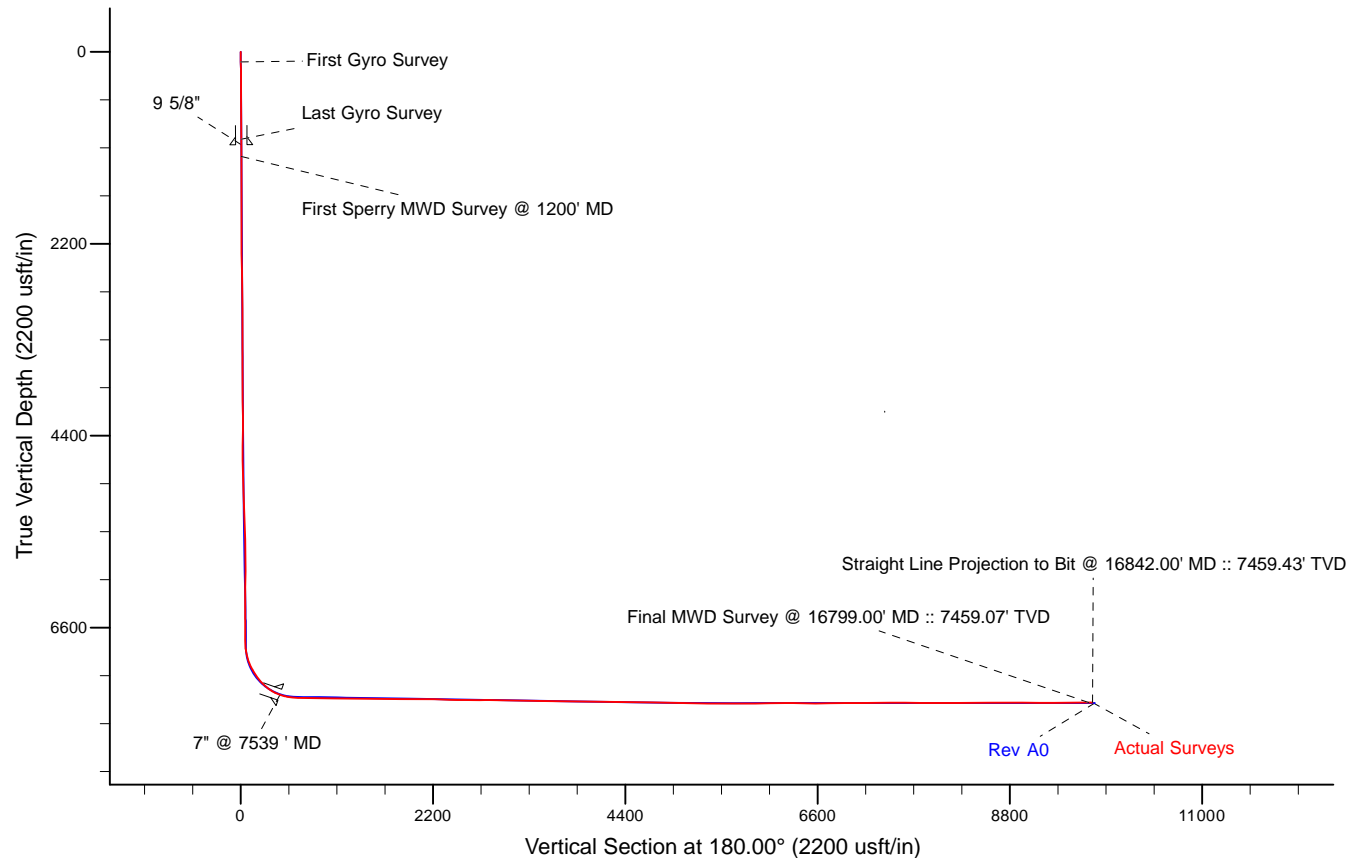
Platted SHL: 742' FNL, 1525' FEL
 Platted Lat/Long: 40.128683 N, 104.835394 W
 Location: Sec. 24-T2N-R67W

~ 7" Casing: 1183.6' FNL 1683.0' FEL
 Lat/Long: 40.127452N, 104.835985W
 State Planes - CO Northern: 1289969.80N, 3185676.74E
 Location: Sec. 24-T2N-R67W

~ BHL: 33.0' FSL, 1656.6' FEL
 Lat/Long: 40.101934N, 104.835904W
 State Planes - CO Northern: 1280674.50N, 3185769.13E
 Location: Sec. 25-T2N-R67W

LEGEND

- ✕ Gee 15C-25HZ, Plan A, Rev A0 V0
- Actual Surveys



WELL DETAILS: Gee 15C-25HZ	
Ground Level:	4859.00
RKB = 16" @ 4875.00usft (Xtreme 22)	
Created By:	Gordy Roth
Created On:	3/8/15

Design Report for Gee 15C-25HZ - Actual 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
116.00	0.53	258.56	116.00	-0.11	-0.52	0.11	0.46
First Gyro Survey							
216.00	0.82	250.82	215.99	-0.43	-1.65	0.43	0.31
316.00	0.52	267.94	315.98	-0.68	-2.78	0.68	0.36
416.00	0.69	234.18	415.98	-1.05	-3.72	1.05	0.39
516.00	0.85	245.45	515.97	-1.71	-4.89	1.71	0.22
616.00	0.67	255.51	615.96	-2.17	-6.13	2.17	0.22
716.00	1.18	244.31	715.95	-2.76	-7.63	2.76	0.53
816.00	1.05	246.45	815.93	-3.58	-9.40	3.58	0.13
916.00	0.90	232.93	915.91	-4.42	-10.86	4.42	0.28
1,001.00	0.70	243.50	1,000.91	-5.05	-11.86	5.05	0.29
Last Gyro Survey							
1,200.00	1.11	272.94	1,199.88	-5.49	-14.87	5.49	0.31
First Sperry MWD Survey @ 1200' MD							
1,685.00	1.03	242.80	1,684.80	-7.24	-23.44	7.24	0.12
1,760.00	1.15	239.55	1,759.79	-7.93	-24.69	7.93	0.18
1,943.00	0.74	273.02	1,942.76	-8.80	-27.45	8.80	0.37
2,126.00	0.47	278.83	2,125.75	-8.62	-29.38	8.62	0.15
2,310.00	0.56	298.46	2,309.75	-8.08	-30.91	8.08	0.11
2,493.00	1.43	187.30	2,492.73	-9.92	-31.99	9.92	0.94
2,676.00	1.98	194.45	2,675.65	-15.25	-33.07	15.25	0.32
2,859.00	0.59	155.35	2,858.60	-19.16	-33.46	19.16	0.86
3,043.00	0.45	95.75	3,042.59	-20.10	-32.35	20.10	0.29
3,226.00	0.46	263.99	3,225.59	-20.25	-32.36	20.25	0.49
3,403.00	0.69	314.91	3,402.58	-19.57	-33.83	19.57	0.30
3,659.00	0.51	255.29	3,658.57	-18.77	-36.02	18.77	0.24
3,831.00	0.85	211.41	3,830.56	-20.05	-37.43	20.05	0.35
4,002.00	1.61	238.93	4,001.52	-22.37	-40.14	22.37	0.55
4,173.00	1.39	272.45	4,172.46	-23.53	-44.27	23.53	0.52
4,345.00	2.33	283.22	4,344.37	-22.64	-49.76	22.64	0.58
4,515.00	2.67	274.74	4,514.21	-21.52	-57.07	21.52	0.30
4,686.00	2.17	267.96	4,685.06	-21.31	-64.28	21.31	0.34
4,857.00	3.27	239.72	4,855.87	-23.88	-71.72	23.88	1.00
5,028.00	4.48	238.05	5,026.47	-29.87	-81.60	29.87	0.71
5,284.00	4.48	236.19	5,281.69	-40.73	-98.39	40.73	0.06
5,455.00	4.61	250.00	5,452.16	-46.79	-110.40	46.79	0.64
5,627.00	3.79	262.21	5,623.70	-49.93	-122.53	49.93	0.70
5,798.00	3.98	265.96	5,794.31	-51.11	-134.05	51.11	0.19
5,969.00	2.11	272.89	5,965.06	-51.37	-143.11	51.37	1.11
6,140.00	0.49	327.83	6,136.01	-50.59	-146.65	50.59	1.09
6,310.00	0.26	7.05	6,306.01	-49.60	-146.99	49.60	0.20
6,479.00	0.60	95.71	6,475.01	-49.30	-146.06	49.30	0.38
6,651.00	1.20	251.22	6,647.00	-49.97	-146.87	49.97	1.03
6,736.00	1.14	237.47	6,731.98	-50.71	-148.42	50.71	0.34
6,779.00	1.26	258.25	6,774.97	-51.04	-149.25	51.04	1.04
6,822.00	5.16	211.32	6,817.90	-52.79	-150.71	52.79	10.22
6,865.00	10.38	206.47	6,860.49	-57.91	-153.45	57.91	12.22
6,907.00	13.40	206.01	6,901.58	-65.68	-157.27	65.68	7.19
6,950.00	16.03	203.16	6,943.17	-75.61	-161.79	75.61	6.34

Design Report for Gee 15C-25HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
6,992.00	19.92	201.91	6,983.11	-87.59	-166.74	87.59	9.31
7,035.00	23.97	195.80	7,022.99	-102.80	-171.86	102.80	10.80
7,077.00	28.39	187.78	7,060.69	-120.91	-175.54	120.91	13.46
7,120.00	30.82	180.36	7,098.08	-142.07	-176.99	142.07	10.22
7,163.00	32.79	178.15	7,134.63	-164.72	-176.68	164.72	5.32
7,206.00	35.61	178.13	7,170.19	-188.88	-175.90	188.88	6.56
7,248.00	39.90	174.98	7,203.39	-214.53	-174.32	214.53	11.20
7,291.00	44.10	174.70	7,235.34	-243.18	-171.73	243.18	9.78
7,333.00	47.58	175.43	7,264.59	-273.20	-169.14	273.20	8.38
7,375.00	51.67	177.10	7,291.80	-305.12	-167.07	305.12	10.20
7,417.00	56.29	178.91	7,316.49	-339.06	-165.91	339.06	11.54
7,459.00	61.74	180.49	7,338.10	-375.05	-165.73	375.05	13.37
7,501.00	67.32	179.33	7,356.16	-412.95	-165.66	412.95	13.52
7,543.00	71.02	179.56	7,371.09	-452.19	-165.29	452.19	8.82
7,585.00	74.66	178.86	7,383.48	-492.31	-164.73	492.31	8.81
7,628.00	79.81	179.45	7,392.98	-534.23	-164.11	534.23	12.05
7,670.00	83.45	178.83	7,399.09	-575.77	-163.49	575.77	8.79
7,707.00	85.07	179.69	7,402.79	-612.58	-163.01	612.58	4.95
7,776.00	88.98	180.74	7,406.37	-681.48	-163.27	681.48	5.87
7,947.00	89.91	180.75	7,408.03	-852.45	-165.50	852.45	0.54
8,118.00	89.29	181.87	7,409.22	-1,023.40	-169.41	1,023.40	0.75
8,289.00	88.89	182.18	7,411.94	-1,194.27	-175.45	1,194.27	0.30
8,458.00	88.46	179.43	7,415.85	-1,363.19	-177.82	1,363.19	1.65
8,629.00	89.97	178.68	7,418.19	-1,534.15	-175.00	1,534.15	0.99
8,801.00	89.88	178.35	7,418.42	-1,706.09	-170.54	1,706.09	0.20
8,971.00	90.62	178.80	7,417.67	-1,876.03	-166.32	1,876.03	0.51
9,142.00	89.14	177.84	7,418.03	-2,046.95	-161.30	2,046.95	1.03
9,313.00	88.49	180.61	7,421.57	-2,217.88	-158.99	2,217.88	1.66
9,485.00	88.15	180.07	7,426.61	-2,389.80	-160.01	2,389.80	0.37
9,656.00	89.17	179.65	7,430.61	-2,560.75	-159.59	2,560.75	0.65
9,827.00	90.49	179.03	7,431.12	-2,731.74	-157.62	2,731.74	0.85
9,998.00	89.29	180.27	7,431.45	-2,902.73	-156.58	2,902.73	1.01
10,169.00	89.05	178.62	7,433.92	-3,073.69	-154.92	3,073.69	0.97
10,340.00	89.38	177.15	7,436.27	-3,244.56	-148.61	3,244.56	0.88
10,510.00	88.37	179.22	7,439.60	-3,414.43	-143.23	3,414.43	1.35
10,681.00	89.60	180.38	7,442.63	-3,585.39	-142.63	3,585.39	0.99
10,853.00	88.12	180.16	7,446.06	-3,757.35	-143.44	3,757.35	0.87
11,024.00	89.23	181.12	7,450.01	-3,928.29	-145.35	3,928.29	0.86
11,195.00	89.85	180.83	7,451.38	-4,099.26	-148.26	4,099.26	0.40
11,365.00	88.52	180.60	7,453.80	-4,269.23	-150.38	4,269.23	0.79
11,536.00	90.00	181.06	7,456.01	-4,440.19	-152.86	4,440.19	0.91
11,708.00	89.54	179.27	7,456.70	-4,612.18	-153.36	4,612.18	1.07
11,877.00	89.94	179.81	7,457.47	-4,781.17	-152.00	4,781.17	0.40
12,048.00	89.26	180.85	7,458.66	-4,952.16	-152.98	4,952.16	0.73
12,218.00	87.90	180.36	7,462.87	-5,122.09	-154.78	5,122.09	0.85
12,389.00	88.58	180.50	7,468.12	-5,293.01	-156.06	5,293.01	0.41
12,475.00	89.63	180.67	7,469.47	-5,378.99	-156.94	5,378.99	1.24
12,643.00	90.62	180.48	7,469.10	-5,546.98	-158.63	5,546.98	0.60
12,814.00	89.29	180.45	7,469.24	-5,717.97	-160.01	5,717.97	0.78
12,985.00	89.91	179.69	7,470.43	-5,888.96	-160.22	5,888.96	0.57
13,157.00	91.45	179.89	7,468.39	-6,060.95	-159.59	6,060.95	0.90

Design Report for Gee 15C-25HZ - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
13,328.00	90.37	179.28	7,465.67	-6,231.92	-158.35	6,231.92	0.73
13,499.00	88.86	178.14	7,466.82	-6,402.86	-154.50	6,402.86	1.11
13,671.00	89.85	178.03	7,468.76	-6,574.75	-148.76	6,574.75	0.58
13,840.00	90.43	180.84	7,468.34	-6,743.73	-147.09	6,743.73	1.70
14,010.00	91.20	180.53	7,465.93	-6,913.70	-149.12	6,913.70	0.49
14,181.00	90.06	181.46	7,464.05	-7,084.65	-152.09	7,084.65	0.86
14,352.00	90.49	181.10	7,463.23	-7,255.61	-155.91	7,255.61	0.33
14,524.00	90.49	180.35	7,461.75	-7,427.59	-158.09	7,427.59	0.44
14,695.00	89.69	177.81	7,461.49	-7,598.55	-155.34	7,598.55	1.56
14,865.00	89.85	175.63	7,462.17	-7,768.26	-145.62	7,768.26	1.29
15,036.00	89.60	176.95	7,462.99	-7,938.90	-134.55	7,938.90	0.79
15,207.00	89.01	180.07	7,465.06	-8,109.80	-130.11	8,109.80	1.86
15,378.00	90.96	179.81	7,465.11	-8,280.80	-129.93	8,280.80	1.15
15,548.00	90.59	179.76	7,462.81	-8,450.78	-129.29	8,450.78	0.22
15,719.00	90.86	179.29	7,460.65	-8,621.76	-127.87	8,621.76	0.32
15,890.00	90.34	180.60	7,458.85	-8,792.74	-127.71	8,792.74	0.82
16,061.00	88.86	181.51	7,460.05	-8,963.70	-130.86	8,963.70	1.02
16,232.00	89.72	181.57	7,462.17	-9,134.63	-135.45	9,134.63	0.50
16,403.00	90.49	181.28	7,461.85	-9,305.57	-139.70	9,305.57	0.48
16,574.00	90.99	179.76	7,459.65	-9,476.55	-141.26	9,476.55	0.94
16,745.00	89.66	180.78	7,458.68	-9,647.54	-142.06	9,647.54	0.98
16,799.00	89.51	180.14	7,459.07	-9,701.53	-142.49	9,701.53	1.22
Final MWD Survey @ 16799.00' MD :: 7459.07' TVD							
16,842.00	89.51	180.14	7,459.43	-9,744.53	-142.60	9,744.53	0.00
Straight Line Projection to Bit @ 16842.00' MD :: 7459.43' TVD							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
116.00	116.00	-0.11	-0.52	First Gyro Survey
1,001.00	1,000.91	-5.05	-11.86	Last Gyro Survey
1,200.00	1,199.88	-5.49	-14.87	First Sperry MWD Survey @ 1200' MD
16,799.00	7,459.07	-9,701.53	-142.49	Final MWD Survey @ 16799.00' MD :: 7459.07' TVD
16,842.00	7,459.43	-9,744.53	-142.60	Straight Line Projection to Bit @ 16842.00' MD :: 7459.43' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.00	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
116.00	1,001.00	VES Gyro Surface Surveys	NS-GYRO-MS
1,200.00	7,752.00	MWD Vertical/Build Surveys	MWD+IFR1+SC
7,752.00	16,842.00	MWD Lateral Surveys	MWD+IFR1+SC

Design Report for Gee 15C-25HZ - Actual Surveys

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,065.00	1,064.90	9 5/8"	9-5/8	13-3/4
7,539.00	7,369.78	7" @ 7539 ' MD	7	8-3/4

Design Report for Gee 15C-25HZ - Actual 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
GEE 15C-25HZ_SHL - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,290,419.43	3,185,838.69	40.128683	-104.835394
GEE 15C-25HZ_LD - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,290,419.43	3,185,838.69	40.128683	-104.835394
Point 1				0.00	-4,495.22	-262.89	1,285,922.55	3,185,609.50	
Point 2				0.00	-3,185.28	-255.88	1,287,232.45	3,185,606.70	
Point 3				0.00	-1,875.24	-248.86	1,288,542.45	3,185,603.90	
Point 4				0.00	-567.81	-241.62	1,289,849.85	3,185,601.34	
Point 5				0.00	283.75	-236.92	1,290,701.38	3,185,599.66	
Point 6				0.00	278.66	683.11	1,290,703.19	3,186,519.66	
Point 7				0.00	-573.03	678.39	1,289,851.52	3,186,521.33	
Point 8				0.00	-1,875.90	671.19	1,288,548.69	3,186,523.89	
Point 9				0.00	-3,183.58	664.18	1,287,241.04	3,186,526.68	
Point 10				0.00	-4,491.09	657.17	1,285,933.57	3,186,529.47	
Point 11				0.00	-5,807.08	656.99	1,284,617.67	3,186,539.15	
Point 12				0.00	-7,133.72	656.83	1,283,291.12	3,186,548.94	
Point 13				0.00	-8,455.99	656.82	1,281,968.94	3,186,558.84	
Point 14				0.00	-9,781.09	656.81	1,280,643.93	3,186,568.76	
Point 15				0.00	-9,781.09	656.81	1,280,643.93	3,186,568.76	
Point 16				0.00	-10,638.98	654.98	1,279,786.09	3,186,573.36	
Point 17				0.00	-10,627.62	-265.03	1,279,790.55	3,185,653.32	
Point 18				0.00	-9,770.57	-263.22	1,280,647.56	3,185,648.71	
Point 19				0.00	-8,451.64	-263.22	1,281,966.40	3,185,638.83	
Point 20				0.00	-7,127.86	-263.21	1,283,290.09	3,185,628.92	
Point 21				0.00	-5,808.99	-263.05	1,284,608.87	3,185,619.19	
Point 22				0.00	-4,495.25	-262.90	1,285,922.52	3,185,609.50	
GEE 15C-25HZ_SEC - actual wellpath hits target center - Polygon	0.00	0.00	0.00	0.00	0.00	1,290,419.43	3,185,838.69	40.128683	-104.835394
Point 1				0.00	6,035.58	-3,671.42	1,296,427.07	3,182,122.29	
Point 2				0.00	8,673.31	-3,662.46	1,299,064.69	3,182,111.48	
Point 3				0.00	11,309.51	-3,649.88	1,301,700.80	3,182,104.30	
Point 4				0.00	11,241.01	-1,028.25	1,301,651.96	3,184,726.26	
Point 5				0.00	11,206.83	282.50	1,301,627.60	3,186,037.18	
Point 6				0.00	11,172.45	1,593.31	1,301,603.05	3,187,348.16	
Point 7				0.00	8,563.36	1,576.76	1,298,994.01	3,187,351.16	
Point 8				0.00	5,954.83	1,560.58	1,296,385.54	3,187,354.53	
Point 9				0.00	5,994.45	-1,056.77	1,296,405.54	3,184,737.06	
Point 10				0.00	6,035.58	-3,671.42	1,296,427.07	3,182,122.29	
Point 11				0.00	5,994.45	-1,056.77	1,296,405.54	3,184,737.06	
Point 12				0.00	5,954.83	1,560.58	1,296,385.54	3,187,354.53	
Point 13				0.00	5,954.83	1,560.65	1,296,385.54	3,187,354.60	
Point 14				0.00	3,344.15	1,546.87	1,293,774.94	3,187,360.39	
Point 15				0.00	2,038.88	1,539.58	1,292,469.70	3,187,362.88	
Point 16				0.00	734.11	1,532.31	1,291,164.97	3,187,365.39	
Point 17				0.00	748.38	-1,081.01	1,291,159.65	3,184,752.14	
Point 18				0.00	763.72	-3,693.81	1,291,155.41	3,182,139.41	
Point 19				0.00	748.38	-1,081.01	1,291,159.65	3,184,752.14	
Point 20				0.00	734.11	1,532.31	1,291,164.97	3,187,365.39	
Point 21				0.00	-1,223.87	1,521.17	1,289,207.04	3,187,368.92	
Point 22				0.00	-1,876.54	1,517.41	1,288,554.39	3,187,370.06	
Point 23				0.00	-4,487.31	1,502.40	1,285,943.69	3,187,374.61	
Point 24				0.00	-4,499.06	-1,108.21	1,285,912.37	3,184,764.27	
Point 25				0.00	-4,498.23	-3,717.72	1,285,893.64	3,182,154.94	
Point 26				0.00	-4,499.06	-1,108.21	1,285,912.37	3,184,764.27	
Point 27				0.00	-4,487.31	1,502.40	1,285,943.69	3,187,374.61	
Point 28				0.00	-9,791.01	1,513.45	1,280,640.43	3,187,425.41	
Point 29				0.00	-9,775.88	196.78	1,280,645.70	3,186,108.72	
Point 30				0.00	-9,760.88	-1,120.12	1,280,650.83	3,184,791.80	
Point 31				0.00	-9,745.30	-2,442.79	1,280,656.49	3,183,469.10	
Point 32				0.00	-9,729.46	-3,765.45	1,280,662.42	3,182,146.41	

Design Report for Gee 15C-25HZ - Actual Surveys

Point 33	0.00	-8,410.24	-3,752.17	1,281,981.65	3,182,149.81		
Point 34	0.00	-7,091.18	-3,738.76	1,283,300.72	3,182,153.33		
Point 35	0.00	-4,498.23	-3,717.72	1,285,893.64	3,182,154.94		
Point 36	0.00	-4,498.23	-3,717.72	1,285,893.64	3,182,154.94		
Point 37	0.00	-3,184.26	-3,711.54	1,287,207.57	3,182,151.27		
Point 38	0.00	-1,870.79	-3,705.39	1,288,521.00	3,182,147.57		
Point 39	0.00	763.69	-3,689.93	1,291,155.41	3,182,143.29		
Point 40	0.00	763.72	-3,693.81	1,291,155.41	3,182,139.41		
Point 41	0.00	3,400.27	-3,682.54	1,293,791.86	3,182,130.92		
Point 42	0.00	4,059.00	-3,679.88	1,294,450.57	3,182,128.64		
Point 43	0.00	4,717.86	-3,677.02	1,295,109.40	3,182,126.56		
Point 44	0.00	6,035.58	-3,671.42	1,296,427.07	3,182,122.29		
GEE 15C-25HZ_HEEL	0.00	0.00	7,395.00	-568.00	-159.00	1,289,850.27	3,185,683.96
- actual wellpath misses target center by 5.60usft at 7661.78usft MD (7398.10 TVD, -567.61 N, -163.65 E)							
- Point							
GEE 15C-25HZ_IT	0.00	0.00	7,465.00	-5,000.31	-156.91	1,285,418.29	3,185,719.26
- actual wellpath misses target center by 6.45usft at 12096.33usft MD (7459.45 TVD, -5000.48 N, -153.64 E)							
- Point							
GEE 15C-25HZ_BHL	0.00	0.00	7,465.00	-9,770.71	-156.66	1,280,648.22	3,185,755.27
- actual wellpath misses target center by 30.23usft at 16842.00usft MD (7459.43 TVD, -9744.53 N, -142.60 E)							
- Point							

Directional Difficulty Index

Average Dogleg over Survey:	1.18 °/100usft	Maximum Dogleg over Survey:	13.52 °/100usft at 7,501.00 usft
Net Tortousity applicable to Plans:	0.58 °/100usft	Directional Difficulty Index:	6.646

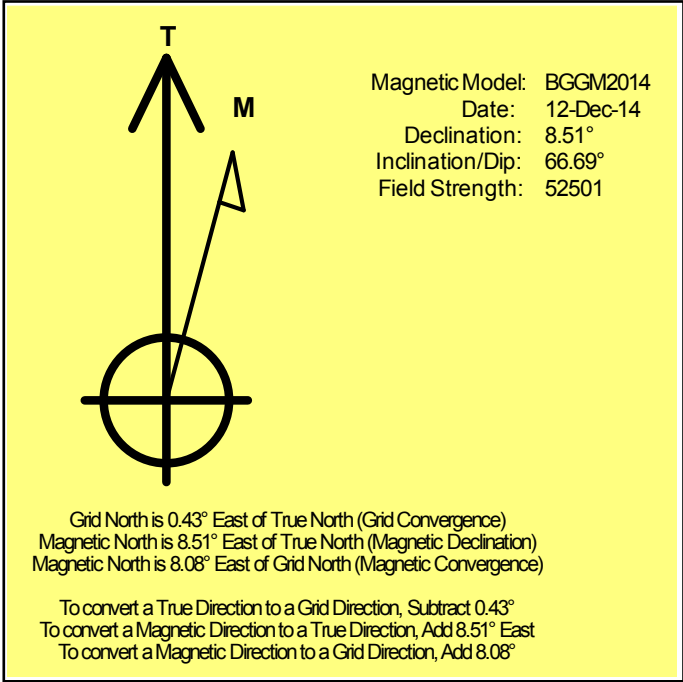
Audit Info

North Reference Sheet for Sec. 24-T2N-R67W - Gee 15C-25HZ - Plan A

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' @ 4875.00usft (Xtreme 22). Northing and Easting are relative to Gee 15C-25HZ
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: 0.99995910

Grid Coordinates of Well: 1,290,419.43 usft N, 3,185,838.69 usft E
Geographical Coordinates of Well: 40° 07' 43.26" N, 104° 50' 07.42" W
Grid Convergence at Surface is: 0.43°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,842.00usft
the Bottom Hole Displacement is 9,745.57usft in the Direction of 180.84° (True).
Magnetic Convergence at surface is: -8.08° (12 December 2014, , BGGM2014)



Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 24-T2N-R67W

Gee 15C-25HZ

Plan A

Design: Actual Surveys

Sperry Drilling Services

Geodetic Report

08 March, 2015

Well Coordinates: 1,290,419.43 N, 3,185,838.69 E (40° 07' 43.26" N, 104° 50' 07.42" W)

Ground Level: 4,859.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 73

Centered on Well Gee 15C-25HZ

RKB = 16' @ 4875.00usft (Xtreme 22)

N

True

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Design Report for Gee 15C-25HZ - Actual 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)
0.00	0.00	0.00	0.00	0.00	0.00	40.128683	-104.835394	1,290,419.43	3,185,838.69
116.00	0.53	258.56	116.00	-0.11	-0.52	40.128683	-104.835396	1,290,419.32	3,185,838.16
216.00	0.82	250.82	215.99	-0.43	-1.65	40.128682	-104.835400	1,290,418.98	3,185,837.04
316.00	0.52	267.94	315.98	-0.68	-2.78	40.128681	-104.835404	1,290,418.72	3,185,835.91
416.00	0.69	234.18	415.98	-1.05	-3.72	40.128680	-104.835408	1,290,418.35	3,185,834.97
516.00	0.85	245.45	515.97	-1.71	-4.89	40.128678	-104.835412	1,290,417.68	3,185,833.81
616.00	0.67	255.51	615.96	-2.17	-6.13	40.128677	-104.835416	1,290,417.21	3,185,832.57
716.00	1.18	244.31	715.95	-2.76	-7.63	40.128675	-104.835422	1,290,416.61	3,185,831.08
816.00	1.05	246.45	815.93	-3.58	-9.40	40.128673	-104.835428	1,290,415.78	3,185,829.32
916.00	0.90	232.93	915.91	-4.42	-10.86	40.128671	-104.835433	1,290,414.93	3,185,827.86
1,001.00	0.70	243.50	1,000.91	-5.05	-11.86	40.128669	-104.835437	1,290,414.29	3,185,826.87
1,200.00	1.11	272.94	1,199.88	-5.49	-14.87	40.128668	-104.835447	1,290,413.82	3,185,823.86
1,685.00	1.03	242.80	1,684.80	-7.24	-23.44	40.128663	-104.835478	1,290,412.01	3,185,815.30
1,760.00	1.15	239.55	1,759.79	-7.93	-24.69	40.128661	-104.835483	1,290,411.31	3,185,814.06
1,943.00	0.74	273.02	1,942.76	-8.80	-27.45	40.128659	-104.835492	1,290,410.42	3,185,811.30
2,126.00	0.47	278.83	2,125.75	-8.62	-29.38	40.128659	-104.835499	1,290,410.58	3,185,809.38
2,310.00	0.56	298.46	2,309.75	-8.08	-30.91	40.128661	-104.835505	1,290,411.12	3,185,807.84
2,493.00	1.43	187.30	2,492.73	-9.92	-31.99	40.128656	-104.835509	1,290,409.27	3,185,806.78
2,676.00	1.98	194.45	2,675.65	-15.25	-33.07	40.128641	-104.835513	1,290,403.93	3,185,805.74
2,859.00	0.59	155.35	2,858.60	-19.16	-33.46	40.128630	-104.835514	1,290,400.01	3,185,805.37
3,043.00	0.45	95.75	3,042.59	-20.10	-32.35	40.128628	-104.835510	1,290,399.09	3,185,806.49
3,226.00	0.46	263.99	3,225.59	-20.25	-32.36	40.128627	-104.835510	1,290,398.94	3,185,806.48
3,403.00	0.69	314.91	3,402.58	-19.57	-33.83	40.128629	-104.835515	1,290,399.61	3,185,805.01
3,659.00	0.51	255.29	3,658.57	-18.77	-36.02	40.128632	-104.835523	1,290,400.39	3,185,802.81
3,831.00	0.85	211.41	3,830.56	-20.05	-37.43	40.128628	-104.835528	1,290,399.10	3,185,801.42
4,002.00	1.61	238.93	4,001.52	-22.37	-40.14	40.128622	-104.835538	1,290,396.75	3,185,798.71
4,173.00	1.39	272.45	4,172.46	-23.53	-44.27	40.128618	-104.835553	1,290,395.57	3,185,794.59
4,345.00	2.33	283.22	4,344.37	-22.64	-49.76	40.128621	-104.835572	1,290,396.42	3,185,789.10
4,515.00	2.67	274.74	4,514.21	-21.52	-57.07	40.128624	-104.835598	1,290,397.48	3,185,781.78
4,686.00	2.17	267.96	4,685.06	-21.31	-64.28	40.128625	-104.835624	1,290,397.64	3,185,774.57
4,857.00	3.27	239.72	4,855.87	-23.88	-71.72	40.128618	-104.835651	1,290,395.01	3,185,767.15
5,028.00	4.48	238.05	5,026.47	-29.87	-81.60	40.128601	-104.835686	1,290,388.94	3,185,757.31
5,284.00	4.48	236.19	5,281.69	-40.73	-98.39	40.128571	-104.835746	1,290,377.96	3,185,740.61
5,455.00	4.61	250.00	5,452.16	-46.79	-110.40	40.128555	-104.835789	1,290,371.81	3,185,728.64
5,627.00	3.79	262.21	5,623.70	-49.93	-122.53	40.128546	-104.835832	1,290,368.58	3,185,716.54
5,798.00	3.98	265.96	5,794.31	-51.11	-134.05	40.128543	-104.835874	1,290,367.31	3,185,705.03
5,969.00	2.11	272.89	5,965.06	-51.37	-143.11	40.128542	-104.835906	1,290,366.99	3,185,695.97
6,140.00	0.49	327.83	6,136.01	-50.59	-146.65	40.128544	-104.835919	1,290,367.74	3,185,692.43
6,310.00	0.26	7.05	6,306.01	-49.60	-146.99	40.128547	-104.835920	1,290,368.73	3,185,692.08
6,479.00	0.60	95.71	6,475.01	-49.30	-146.06	40.128548	-104.835917	1,290,369.03	3,185,693.01
6,651.00	1.20	251.22	6,647.00	-49.97	-146.87	40.128546	-104.835919	1,290,368.36	3,185,692.21
6,736.00	1.14	237.47	6,731.98	-50.71	-148.42	40.128544	-104.835925	1,290,367.60	3,185,690.66

Design Report for Gee 15C-25HZ - Actual 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)
6,779.00	1.26	258.25	6,774.97	-51.04	-149.25	40.128543	-104.835928	1,290,367.27	3,185,689.83
6,822.00	5.16	211.32	6,817.90	-52.79	-150.71	40.128538	-104.835933	1,290,365.51	3,185,688.38
6,865.00	10.38	206.47	6,860.49	-57.91	-153.45	40.128524	-104.835943	1,290,360.37	3,185,685.68
6,907.00	13.40	206.01	6,901.58	-65.68	-157.27	40.128503	-104.835957	1,290,352.58	3,185,681.92
6,950.00	16.03	203.16	6,943.17	-75.61	-161.79	40.128475	-104.835973	1,290,342.61	3,185,677.47
6,992.00	19.92	201.91	6,983.11	-87.59	-166.74	40.128443	-104.835991	1,290,330.59	3,185,672.61
7,035.00	23.97	195.80	7,022.99	-102.80	-171.86	40.128401	-104.836009	1,290,315.35	3,185,667.61
7,077.00	28.39	187.78	7,060.69	-120.91	-175.54	40.128351	-104.836022	1,290,297.21	3,185,664.07
7,120.00	30.82	180.36	7,098.08	-142.07	-176.99	40.128293	-104.836027	1,290,276.04	3,185,662.78
7,163.00	32.79	178.15	7,134.63	-164.72	-176.68	40.128231	-104.836026	1,290,253.39	3,185,663.25
7,206.00	35.61	178.13	7,170.19	-188.88	-175.90	40.128165	-104.836023	1,290,229.24	3,185,664.22
7,248.00	39.90	174.98	7,203.39	-214.53	-174.32	40.128094	-104.836018	1,290,203.60	3,185,665.99
7,291.00	44.10	174.70	7,235.34	-243.18	-171.73	40.128016	-104.836008	1,290,174.97	3,185,668.79
7,333.00	47.58	175.43	7,264.59	-273.20	-169.14	40.127933	-104.835999	1,290,144.98	3,185,671.60
7,375.00	51.67	177.10	7,291.80	-305.12	-167.07	40.127845	-104.835992	1,290,113.08	3,185,673.91
7,417.00	56.29	178.91	7,316.49	-339.06	-165.91	40.127752	-104.835988	1,290,079.15	3,185,675.33
7,459.00	61.74	180.49	7,338.10	-375.05	-165.73	40.127654	-104.835987	1,290,043.16	3,185,675.78
7,501.00	67.32	179.33	7,356.16	-412.95	-165.66	40.127549	-104.835987	1,290,005.27	3,185,676.13
7,543.00	71.02	179.56	7,371.09	-452.19	-165.29	40.127442	-104.835985	1,289,966.02	3,185,676.80
7,585.00	74.66	178.86	7,383.48	-492.31	-164.73	40.127332	-104.835983	1,289,925.91	3,185,677.66
7,628.00	79.81	179.45	7,392.98	-534.23	-164.11	40.127217	-104.835981	1,289,884.00	3,185,678.59
7,670.00	83.45	178.83	7,399.09	-575.77	-163.49	40.127103	-104.835979	1,289,842.47	3,185,679.52
7,707.00	85.07	179.69	7,402.79	-612.58	-163.01	40.127001	-104.835977	1,289,805.66	3,185,680.28
7,776.00	88.98	180.74	7,406.37	-681.48	-163.27	40.126812	-104.835978	1,289,736.77	3,185,680.53
7,947.00	89.91	180.75	7,408.03	-852.45	-165.50	40.126343	-104.835986	1,289,565.79	3,185,679.59
8,118.00	89.29	181.87	7,409.22	-1,023.40	-169.41	40.125874	-104.836000	1,289,394.83	3,185,676.96
8,289.00	88.89	182.18	7,411.94	-1,194.27	-175.45	40.125405	-104.836022	1,289,223.92	3,185,672.20
8,458.00	88.46	179.43	7,415.85	-1,363.19	-177.82	40.124941	-104.836030	1,289,055.00	3,185,671.09
8,629.00	89.97	178.68	7,418.19	-1,534.15	-175.00	40.124472	-104.836020	1,288,884.08	3,185,675.20
8,801.00	89.88	178.35	7,418.42	-1,706.09	-170.54	40.124000	-104.836004	1,288,712.18	3,185,680.94
8,971.00	90.62	178.80	7,417.67	-1,876.03	-166.32	40.123533	-104.835989	1,288,542.28	3,185,686.44
9,142.00	89.14	177.84	7,418.03	-2,046.95	-161.30	40.123064	-104.835971	1,288,371.41	3,185,692.74
9,313.00	88.49	180.61	7,421.57	-2,217.88	-158.99	40.122595	-104.835963	1,288,200.51	3,185,696.33
9,485.00	88.15	180.07	7,426.61	-2,389.80	-160.01	40.122123	-104.835966	1,288,028.59	3,185,696.60
9,656.00	89.17	179.65	7,430.61	-2,560.75	-159.59	40.121654	-104.835965	1,287,857.65	3,185,698.30
9,827.00	90.49	179.03	7,431.12	-2,731.74	-157.62	40.121184	-104.835958	1,287,686.70	3,185,701.55
9,998.00	89.29	180.27	7,431.45	-2,902.73	-156.58	40.120715	-104.835954	1,287,515.73	3,185,703.87
10,169.00	89.05	178.62	7,433.92	-3,073.69	-154.92	40.120246	-104.835948	1,287,344.78	3,185,706.81
10,340.00	89.38	177.15	7,436.27	-3,244.56	-148.61	40.119777	-104.835926	1,287,173.98	3,185,714.40
10,510.00	88.37	179.22	7,439.60	-3,414.43	-143.23	40.119310	-104.835906	1,287,004.16	3,185,721.06
10,681.00	89.60	180.38	7,442.63	-3,585.39	-142.63	40.118841	-104.835904	1,286,833.21	3,185,722.94
10,853.00	88.12	180.16	7,446.06	-3,757.35	-143.44	40.118369	-104.835907	1,286,661.26	3,185,723.41

Design Report for Gee 15C-25HZ - Actual 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)
11,024.00	89.23	181.12	7,450.01	-3,928.29	-145.35	40.117900	-104.835914	1,286,490.32	3,185,722.78
11,195.00	89.85	180.83	7,451.38	-4,099.26	-148.26	40.117430	-104.835924	1,286,319.34	3,185,721.16
11,365.00	88.52	180.60	7,453.80	-4,269.23	-150.38	40.116964	-104.835932	1,286,149.37	3,185,720.31
11,536.00	90.00	181.06	7,456.01	-4,440.19	-152.86	40.116495	-104.835941	1,285,978.40	3,185,719.11
11,708.00	89.54	179.27	7,456.70	-4,612.18	-153.36	40.116022	-104.835943	1,285,806.42	3,185,719.91
11,877.00	89.94	179.81	7,457.47	-4,781.17	-152.00	40.115559	-104.835938	1,285,637.45	3,185,722.53
12,048.00	89.26	180.85	7,458.66	-4,952.16	-152.98	40.115089	-104.835941	1,285,466.46	3,185,722.83
12,218.00	87.90	180.36	7,462.87	-5,122.09	-154.78	40.114623	-104.835948	1,285,296.53	3,185,722.31
12,389.00	88.58	180.50	7,468.12	-5,293.01	-156.06	40.114154	-104.835952	1,285,125.61	3,185,722.30
12,475.00	89.63	180.67	7,469.47	-5,378.99	-156.94	40.113918	-104.835955	1,285,039.63	3,185,722.07
12,643.00	90.62	180.48	7,469.10	-5,546.98	-158.63	40.113456	-104.835961	1,284,871.64	3,185,721.64
12,814.00	89.29	180.45	7,469.24	-5,717.97	-160.01	40.112987	-104.835966	1,284,700.65	3,185,721.54
12,985.00	89.91	179.69	7,470.43	-5,888.96	-160.22	40.112518	-104.835967	1,284,529.67	3,185,722.61
13,157.00	91.45	179.89	7,468.39	-6,060.95	-159.59	40.112046	-104.835965	1,284,357.70	3,185,724.53
13,328.00	90.37	179.28	7,465.67	-6,231.92	-158.35	40.111576	-104.835960	1,284,186.75	3,185,727.05
13,499.00	88.86	178.14	7,466.82	-6,402.86	-154.50	40.111107	-104.835947	1,284,015.85	3,185,732.18
13,671.00	89.85	178.03	7,468.76	-6,574.75	-148.76	40.110635	-104.835926	1,283,844.01	3,185,739.22
13,840.00	90.43	180.84	7,468.34	-6,743.73	-147.09	40.110171	-104.835920	1,283,675.06	3,185,742.15
14,010.00	91.20	180.53	7,465.93	-6,913.70	-149.12	40.109705	-104.835927	1,283,505.09	3,185,741.39
14,181.00	90.06	181.46	7,464.05	-7,084.65	-152.09	40.109235	-104.835938	1,283,334.12	3,185,739.70
14,352.00	90.49	181.10	7,463.23	-7,255.61	-155.91	40.108766	-104.835952	1,283,163.15	3,185,737.16
14,524.00	90.49	180.35	7,461.75	-7,427.59	-158.09	40.108294	-104.835959	1,282,991.17	3,185,736.28
14,695.00	89.69	177.81	7,461.49	-7,598.55	-155.34	40.107825	-104.835950	1,282,820.24	3,185,740.30
14,865.00	89.85	175.63	7,462.17	-7,768.26	-145.62	40.107359	-104.835915	1,282,650.61	3,185,751.30
15,036.00	89.60	176.95	7,462.99	-7,938.90	-134.55	40.106890	-104.835875	1,282,480.07	3,185,763.64
15,207.00	89.01	180.07	7,465.06	-8,109.80	-130.11	40.106421	-104.835859	1,282,309.21	3,185,769.37
15,378.00	90.96	179.81	7,465.11	-8,280.80	-129.93	40.105952	-104.835859	1,282,138.23	3,185,770.83
15,548.00	90.59	179.76	7,462.81	-8,450.78	-129.29	40.105485	-104.835856	1,281,968.26	3,185,772.74
15,719.00	90.86	179.29	7,460.65	-8,621.76	-127.87	40.105016	-104.835851	1,281,797.30	3,185,775.44
15,890.00	90.34	180.60	7,458.85	-8,792.74	-127.71	40.104547	-104.835851	1,281,626.33	3,185,776.89
16,061.00	88.86	181.51	7,460.05	-8,963.70	-130.86	40.104077	-104.835862	1,281,455.36	3,185,775.02
16,232.00	89.72	181.57	7,462.17	-9,134.63	-135.45	40.103608	-104.835878	1,281,284.41	3,185,771.70
16,403.00	90.49	181.28	7,461.85	-9,305.57	-139.70	40.103139	-104.835894	1,281,113.45	3,185,768.73
16,574.00	90.99	179.76	7,459.65	-9,476.55	-141.26	40.102670	-104.835899	1,280,942.47	3,185,768.46
16,745.00	89.66	180.78	7,458.68	-9,647.54	-142.06	40.102200	-104.835902	1,280,771.49	3,185,768.94
16,799.00	89.51	180.14	7,459.07	-9,701.53	-142.49	40.102052	-104.835904	1,280,717.50	3,185,768.91
16,842.00	89.51	180.14	7,459.43	-9,744.53	-142.60	40.101934	-104.835904	1,280,674.50	3,185,769.13

Design Report for Gee 15C-25HZ - Actual Surveys

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
116.00	116.00	-0.11	-0.52	First Gyro Survey
1,001.00	1,000.91	-5.05	-11.86	Last Gyro Survey
1,200.00	1,199.88	-5.49	-14.87	First Sperry MWD Survey @ 1200' MD
16,799.00	7,459.07	-9,701.53	-142.49	Final MWD Survey @ 16799.00' MD :: 7459.07' TVD
16,842.00	7,459.43	-9,744.53	-142.60	Straight Line Projection to Bit @ 16842.00' MD :: 7459.43' TVD

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	180.00	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
116.00	1,001.00	VES Gyro Surface Surveys	NS-GYRO-MS
1,200.00	7,752.00	MWD Vertical/Build Surveys	MWD+IFR1+SC
7,752.00	16,842.00	MWD Lateral Surveys	MWD+IFR1+SC

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,065.00	1,064.90	9 5/8"	9-5/8	13-3/4
7,539.00	7,369.78	7" @ 7539' MD	7	8-3/4

Design Report for Gee 15C-25HZ - Actual Surveys

Design Targets

Shape	Target Name	TVD ()	Northing ()	Easting ()	+N/-S	+E/-W	Created	Updated
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Directional Difficulty Index

Average Dogleg over Survey:	1.18 °/100usft	Maximum Dogleg over Survey:	13.52 °/100usft at 7,501.00 usft
Net Tortosity applicable to Plans:	0.58 °/100usft	Directional Difficulty Index:	6.646

Audit Info

North Reference Sheet for Sec. 24-T2N-R67W - Gee 15C-25HZ - Plan A

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' @ 4875.00usft (Xtreme 22). Northing and Easting are relative to Gee 15C-25HZ

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: 0.99995910

Grid Coordinates of Well: 1,290,419.43 usft N, 3,185,838.69 usft E

Geographical Coordinates of Well: 40° 07' 43.26" N, 104° 50' 07.42" W

Grid Convergence at Surface is: 0.43°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,842.00usft

the Bottom Hole Displacement is 9,745.57usft in the Direction of 180.84° (True).

Magnetic Convergence at surface is: -8.08° (12 December 2014, , BGGM2014)

