

Noble Energy

Weld County, CO (NAD 83)
Sec. 5-T9N-R58W (Heston PAD)
Heston LD06-625
05-123-40813
Plan A

Design: Actual Surveys

Sperry Drilling Services

Final Survey Report

09 August, 2016

Surface UWI : 05-123-40813

Well Coordinates: 1,529,512.52 N, 3,448,606.24 E (40° 46' 32.34" N, 103° 52' 48.72" W)
Ground Level: 4,801.00 usft

Local Coordinate Origin:

Centered on Well Heston LD06-625

Viewing Datum:

KB=30' @ 4831.00usft (H&P 517)

TVDs to System:

N

North Reference:

Grid

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 81

HALLIBURTON

Design Report for Heston LD06-625 - 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
84.00	0.63	143.60	84.00	-0.37	0.27	-0.26	0.75
First Gyro Data Survey at 84.00ft							
179.00	0.61	126.56	178.99	-1.09	0.99	-0.96	0.19
273.00	0.62	142.74	272.99	-1.80	1.70	-1.66	0.18
367.00	0.65	128.51	366.98	-2.53	2.43	-2.36	0.17
462.00	0.61	124.49	461.98	-3.15	3.26	-3.19	0.06
557.00	0.39	162.85	556.97	-3.75	3.78	-3.68	0.41
651.00	0.39	155.82	650.97	-4.35	4.00	-3.89	0.05
745.00	0.32	139.03	744.97	-4.84	4.30	-4.19	0.13
840.00	0.22	111.80	839.97	-5.11	4.65	-4.52	0.17
934.00	0.33	137.28	933.97	-5.37	5.00	-4.87	0.17
1,029.00	0.11	80.98	1,028.97	-5.56	5.27	-5.14	0.30
1,123.00	0.17	104.55	1,122.97	-5.58	5.50	-5.36	0.09
1,218.00	0.29	68.59	1,217.96	-5.53	5.86	-5.72	0.19
1,312.00	0.31	110.96	1,311.96	-5.53	6.32	-6.18	0.23
1,407.00	0.45	109.61	1,406.96	-5.75	6.91	-6.77	0.15
1,501.00	0.59	109.95	1,500.96	-6.04	7.71	-7.56	0.15
1,596.00	0.32	116.51	1,595.95	-6.32	8.41	-8.25	0.29
1,695.00	0.35	110.18	1,694.95	-6.55	8.94	-8.78	0.05
1,785.00	0.21	46.14	1,784.95	-6.53	9.32	-9.16	0.36
1,876.00	0.37	97.98	1,875.95	-6.46	9.73	-9.57	0.32
Final Gyro data Survey at 1876.00ft							
1,963.00	0.16	343.73	1,962.95	-6.38	9.97	-9.81	0.53
First Intermediate Sperry MWD Survey Corrected by Surcon at 1963.00ft							
2,058.00	0.46	312.09	2,057.95	-6.00	9.65	-9.50	0.35
2,152.00	1.27	70.31	2,151.94	-5.39	10.35	-10.22	1.64
2,247.00	3.44	85.75	2,246.86	-4.83	14.19	-14.07	2.36
2,342.00	4.68	81.77	2,341.62	-4.06	20.87	-20.76	1.34
2,436.00	6.46	87.25	2,435.17	-3.26	29.94	-29.86	1.97
2,531.00	7.53	82.64	2,529.46	-2.20	41.46	-41.39	1.27
2,625.00	9.03	85.88	2,622.48	-0.88	54.92	-54.88	1.67
2,720.00	10.49	84.98	2,716.10	0.41	70.97	-70.96	1.55
2,814.00	11.58	84.28	2,808.36	2.10	88.89	-88.91	1.17
2,909.00	12.12	83.95	2,901.34	4.10	108.29	-108.36	0.57
3,004.00	11.69	81.91	2,994.29	6.50	127.74	-127.86	0.63
3,098.00	11.50	85.38	3,086.38	8.60	146.51	-146.67	0.77
3,193.00	11.89	89.14	3,179.41	9.51	165.73	-165.91	0.90
3,287.00	11.98	89.34	3,271.37	9.77	185.17	-185.35	0.11
3,382.00	12.90	88.20	3,364.14	10.21	205.63	-205.81	1.00
3,476.00	13.01	85.76	3,455.75	11.33	226.67	-226.87	0.59
3,571.00	12.93	85.86	3,548.33	12.88	247.93	-248.17	0.09
3,666.00	12.99	85.95	3,640.91	14.41	269.18	-269.45	0.07
3,760.00	12.93	84.96	3,732.51	16.08	290.20	-290.50	0.24
3,855.00	12.29	85.48	3,825.22	17.81	310.86	-311.21	0.68
3,949.00	11.55	86.73	3,917.19	19.13	330.23	-330.60	0.83
4,044.00	12.52	86.37	4,010.10	20.33	350.00	-350.40	1.02
4,138.00	12.93	87.00	4,101.80	21.52	370.68	-371.09	0.46
4,233.00	12.67	87.57	4,194.44	22.52	391.70	-392.13	0.30
4,328.00	11.21	86.57	4,287.38	23.51	411.33	-411.78	1.55

Design Report for Heston LD06-625 - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
4,517.00	13.19	80.86	4,472.11	28.04	450.96	-451.51	1.23
4,611.00	12.15	75.18	4,563.82	32.27	471.11	-471.76	1.73
4,706.00	11.32	76.17	4,656.83	37.06	489.83	-490.59	0.90
4,800.00	9.87	78.12	4,749.23	40.92	506.67	-507.52	1.59
4,894.00	9.49	83.63	4,841.89	43.44	522.26	-523.16	1.06
4,989.00	9.16	80.46	4,935.64	45.56	537.50	-538.45	0.64
5,083.00	7.90	78.72	5,028.60	48.07	551.21	-552.22	1.37
5,178.00	6.28	76.24	5,122.87	50.58	562.66	-563.73	1.74
5,273.00	4.57	71.19	5,217.44	53.04	571.29	-572.41	1.87
5,367.00	3.11	288.38	5,311.35	55.05	572.42	-573.59	7.76
5,462.00	13.67	275.22	5,405.20	56.89	558.76	-559.97	11.23
5,557.00	18.97	272.42	5,496.34	58.56	532.13	-533.40	5.64
5,651.00	26.24	268.19	5,583.07	58.55	496.05	-497.32	7.92
5,746.00	37.88	267.98	5,663.44	56.86	445.73	-446.98	12.25
5,841.00	49.67	266.49	5,731.92	53.60	380.21	-381.40	12.46
5,935.00	57.09	268.49	5,787.96	50.36	304.89	-306.03	8.08
6,030.00	63.47	265.27	5,835.04	45.80	222.58	-223.62	7.33
6,124.00	69.56	265.65	5,872.48	38.99	136.67	-137.58	6.49
6,219.00	77.21	264.09	5,899.63	30.83	46.08	-46.81	8.20
6,314.00	83.78	268.49	5,915.31	24.80	-47.35	46.73	8.29
Final Intermediate Sperry MWD Survey Corrected by Surcon at 6314.00ft							
6,408.00	91.47	268.28	5,919.20	22.16	-141.16	140.58	8.18
First Production Sperry MWD Survey Corrected by Surcon at 6408.00ft							
6,503.00	91.38	268.58	5,916.84	19.56	-236.10	235.55	0.33
6,598.00	90.45	268.17	5,915.32	16.86	-331.04	330.54	1.07
6,692.00	89.53	268.10	5,915.34	13.80	-424.99	424.53	0.98
6,787.00	88.88	267.73	5,916.66	10.35	-519.92	519.51	0.79
6,881.00	89.74	268.63	5,917.79	7.36	-613.86	613.50	1.32
6,976.00	89.34	268.12	5,918.55	4.67	-708.82	708.50	0.68
7,070.00	90.30	267.87	5,918.85	1.38	-802.76	802.49	1.06
7,165.00	89.96	267.87	5,918.63	-2.15	-897.70	897.48	0.36
7,259.00	90.17	268.91	5,918.53	-4.79	-991.66	991.48	1.13
7,354.00	91.31	269.41	5,917.30	-6.18	-1,086.64	1,086.47	1.31
7,448.00	91.13	269.33	5,915.30	-7.22	-1,180.61	1,180.44	0.21
7,570.00	91.00	269.28	5,913.03	-8.70	-1,302.58	1,302.41	0.11
7,664.00	90.69	269.42	5,911.65	-9.76	-1,396.57	1,396.39	0.36
7,759.00	90.42	269.27	5,910.72	-10.85	-1,491.55	1,491.38	0.33
7,853.00	90.55	269.35	5,909.93	-11.98	-1,585.54	1,585.37	0.16
7,948.00	90.86	269.65	5,908.76	-12.81	-1,680.53	1,680.35	0.45
8,043.00	91.13	269.64	5,907.11	-13.40	-1,775.52	1,775.32	0.28
8,137.00	91.25	269.95	5,905.16	-13.74	-1,869.50	1,869.28	0.35
8,326.00	91.29	269.69	5,900.97	-14.33	-2,058.45	2,058.19	0.14
8,421.00	91.29	269.60	5,898.83	-14.92	-2,153.42	2,153.15	0.09
8,515.00	91.26	269.64	5,896.74	-15.54	-2,247.40	2,247.11	0.05
8,610.00	90.71	269.20	5,895.11	-16.50	-2,342.38	2,342.09	0.74
8,705.00	90.13	268.53	5,894.41	-18.38	-2,437.36	2,437.08	0.93
8,799.00	89.91	269.02	5,894.38	-20.39	-2,531.33	2,531.08	0.57
8,893.00	89.76	268.83	5,894.65	-22.16	-2,625.32	2,625.08	0.26
8,988.00	91.45	268.61	5,893.64	-24.28	-2,720.28	2,720.07	1.79
9,083.00	91.30	268.67	5,891.36	-26.53	-2,815.23	2,815.04	0.17
9,177.00	90.99	268.60	5,889.49	-28.77	-2,909.18	2,909.02	0.34

Design Report for Heston LD06-625 - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
9,272.00	90.72	268.46	5,888.07	-31.21	-3,004.14	3,004.01	0.32
9,366.00	90.28	267.86	5,887.25	-34.23	-3,098.09	3,098.01	0.79
9,461.00	90.16	268.22	5,886.88	-37.48	-3,193.03	3,193.00	0.40
9,555.00	89.92	268.36	5,886.82	-40.28	-3,286.99	3,287.00	0.30
9,650.00	89.27	268.26	5,887.49	-43.08	-3,381.95	3,381.99	0.69
9,744.00	90.19	266.63	5,887.93	-47.27	-3,475.85	3,475.97	1.99
9,839.00	90.29	266.33	5,887.53	-53.11	-3,570.67	3,570.90	0.33
9,933.00	89.89	266.26	5,887.39	-59.18	-3,664.47	3,664.83	0.43
10,028.00	89.61	266.26	5,887.80	-65.38	-3,759.27	3,759.75	0.29
10,123.00	90.44	267.35	5,887.76	-70.67	-3,854.12	3,854.70	1.44
10,217.00	91.55	268.14	5,886.13	-74.37	-3,948.03	3,948.67	1.45
10,312.00	91.27	268.73	5,883.79	-76.96	-4,042.96	4,043.64	0.69
10,406.00	91.06	268.14	5,881.88	-79.53	-4,136.91	4,137.62	0.67
10,501.00	91.06	268.93	5,880.12	-81.96	-4,231.86	4,232.60	0.83
10,596.00	90.75	268.39	5,878.62	-84.18	-4,326.82	4,327.59	0.66
10,690.00	90.35	268.16	5,877.72	-87.01	-4,420.78	4,421.58	0.49
10,785.00	90.26	268.12	5,877.21	-90.09	-4,515.72	4,516.58	0.10
10,974.00	89.80	267.98	5,877.11	-96.52	-4,704.61	4,705.57	0.25
11,069.00	89.58	267.46	5,877.63	-100.30	-4,799.54	4,800.56	0.59
11,163.00	89.21	267.31	5,878.62	-104.59	-4,893.43	4,894.53	0.42
11,257.00	90.82	268.91	5,878.60	-107.69	-4,987.38	4,988.52	2.41
11,352.00	90.57	269.03	5,877.44	-109.40	-5,082.35	5,083.51	0.29
11,447.00	90.11	269.09	5,876.88	-110.96	-5,177.34	5,178.51	0.49
11,541.00	89.61	268.02	5,877.11	-113.33	-5,271.31	5,272.50	1.26
11,636.00	89.40	268.22	5,877.93	-116.44	-5,366.25	5,367.50	0.31
11,730.00	90.08	269.33	5,878.36	-118.45	-5,460.23	5,461.49	1.38
11,825.00	91.46	269.32	5,877.08	-119.57	-5,555.21	5,556.48	1.45
11,919.00	91.06	268.63	5,875.01	-121.25	-5,649.17	5,650.45	0.85
12,014.00	90.75	268.35	5,873.51	-123.76	-5,744.13	5,745.44	0.44
12,109.00	90.60	268.36	5,872.39	-126.48	-5,839.08	5,840.43	0.16
12,203.00	90.51	268.88	5,871.48	-128.75	-5,933.05	5,934.43	0.56
12,298.00	90.01	268.23	5,871.05	-131.14	-6,028.02	6,029.42	0.86
12,392.00	92.08	269.23	5,869.34	-133.23	-6,121.97	6,123.40	2.45
12,487.00	92.08	268.62	5,865.89	-135.01	-6,216.89	6,218.34	0.64
12,581.00	92.60	268.98	5,862.05	-136.97	-6,310.79	6,312.26	0.67
12,676.00	92.46	268.22	5,857.86	-139.29	-6,405.67	6,407.16	0.81
12,771.00	89.96	267.88	5,855.85	-142.52	-6,500.59	6,502.13	2.66
12,866.00	90.61	267.50	5,855.38	-146.35	-6,595.51	6,597.12	0.79
12,960.00	91.68	267.57	5,853.50	-150.40	-6,689.40	6,691.08	1.14
13,055.00	89.77	268.48	5,852.30	-153.67	-6,784.33	6,786.06	2.23
13,149.00	90.40	268.34	5,852.16	-156.28	-6,878.30	6,880.06	0.69
13,244.00	91.26	268.63	5,850.78	-158.79	-6,973.25	6,975.05	0.96
13,339.00	89.16	268.38	5,850.44	-161.27	-7,068.21	7,070.04	2.23
13,528.00	88.70	268.00	5,853.96	-167.24	-7,257.08	7,259.01	0.32
13,622.00	89.22	268.08	5,855.67	-170.45	-7,351.01	7,352.99	0.56
13,717.00	89.62	267.43	5,856.63	-174.17	-7,445.94	7,447.97	0.80
13,811.00	90.36	267.15	5,856.65	-178.62	-7,539.83	7,541.94	0.84
13,906.00	91.23	267.60	5,855.33	-182.97	-7,634.72	7,636.91	1.03
14,000.00	91.77	267.47	5,852.87	-187.01	-7,728.60	7,730.86	0.59
14,095.00	91.84	268.70	5,849.88	-190.18	-7,823.50	7,825.81	1.30
14,190.00	91.00	269.03	5,847.52	-192.06	-7,918.45	7,920.78	0.95

Design Report for Heston LD06-625 - Actual Surveys

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)
14,284.00	91.28	268.81	5,845.65	-193.83	-8,012.41	8,014.76	0.38
14,378.00	91.62	268.74	5,843.27	-195.84	-8,106.36	8,108.73	0.37
14,473.00	89.06	269.05	5,842.71	-197.67	-8,201.33	8,203.72	2.71
14,567.00	88.78	268.84	5,844.48	-199.40	-8,295.30	8,297.70	0.37
14,662.00	88.54	268.72	5,846.70	-201.43	-8,390.25	8,392.67	0.28
14,756.00	89.06	268.70	5,848.67	-203.54	-8,484.21	8,486.65	0.55
14,851.00	89.31	268.03	5,850.02	-206.25	-8,579.16	8,581.64	0.75
14,945.00	90.45	269.14	5,850.22	-208.57	-8,673.13	8,675.64	1.69
15,040.00	91.50	269.15	5,848.60	-209.99	-8,768.10	8,770.62	1.11
15,134.00	91.22	268.86	5,846.37	-211.62	-8,862.06	8,864.59	0.43
15,229.00	90.11	268.61	5,845.27	-213.72	-8,957.03	8,959.58	1.20
15,324.00	90.11	268.61	5,845.09	-216.02	-9,052.00	9,054.58	0.00
15,418.00	89.80	268.42	5,845.16	-218.46	-9,145.97	9,148.58	0.39
15,513.00	89.89	268.18	5,845.42	-221.28	-9,240.93	9,243.58	0.27
15,608.00	90.64	268.26	5,844.98	-224.23	-9,335.88	9,338.57	0.79
15,702.00	91.52	268.62	5,843.21	-226.79	-9,429.83	9,432.56	1.01
15,797.00	92.12	268.51	5,840.19	-229.17	-9,524.75	9,527.51	0.64
15,891.00	92.24	268.26	5,836.62	-231.81	-9,618.65	9,621.44	0.29
15,986.00	93.65	268.14	5,831.73	-234.79	-9,713.47	9,716.31	1.49
16,081.00	93.35	267.60	5,825.94	-238.32	-9,808.23	9,811.12	0.65
16,121.00	93.35	267.41	5,823.60	-240.06	-9,848.12	9,851.05	0.47
Final Production Sperry MWD Survey Corrected by Surcon at 16121.00ft							
16,180.00	93.35	267.41	5,820.15	-242.72	-9,906.96	9,909.93	0.00
Straight Line Projection to TD at 16180.00ft							

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
84.00	84.00	-0.37	0.27	First Gyro Data Survey at 84.00ft
1,876.00	1,875.95	-6.46	9.73	Final Gyro data Survey at 1876.00ft
1,963.00	1,962.95	-6.38	9.97	First Intermediate Sperry MWD Survey Corrected by Surcon at 1963.00ft
6,314.00	5,915.31	24.80	-47.35	Final Intermediate Sperry MWD Survey Corrected by Surcon at 6314.00ft
6,408.00	5,919.20	22.16	-141.16	First Production Sperry MWD Survey Corrected by Surcon at 6408.00ft
16,121.00	5,823.60	-240.06	-9,848.12	Final Production Sperry MWD Survey Corrected by Surcon at 16121.00ft
16,180.00	5,820.15	-242.72	-9,906.96	Straight Line Projection to TD at 16180.00ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
Target	Heston LD06-625_Rev A1_BHL	268.61	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
84.00	1,876.00	Gyro Data Surveys	NS-GYRO-MS
1,963.00	6,314.00	Intermediate Sperry MWD Surveys	MWD+IFR1+MS_WY

Design Report for Heston LD06-625 - Actual Surveys

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
6,408.00	16,180.00	Production Sperry MWD Surveys	MWD+IFR1+MS_WY

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
Heston LD06-625_Rev - actual wellpath misses target center by 0.01usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	0.01	0.00	1,529,512.53	3,448,606.24	40.775650	-103.880200
Heston LD06-625_Rev - actual wellpath misses target center by 11.38usft at 16180.00usft MD (5820.15 TVD, -242.72 N, -9906.96 E) - Point	0.00	0.00	5,831.00	-240.98	-9,909.94	1,529,271.54	3,438,696.31	40.775480	-103.915990
Heston LD06-625_Rev - actual wellpath misses target center by 11.38usft at 16180.00usft MD (5820.15 TVD, -242.72 N, -9906.96 E) - Point	0.00	0.00	5,831.00	-240.98	-9,909.94	1,529,271.54	3,438,696.31	40.775480	-103.915990
Heston LD06-625_Rev - actual wellpath misses target center by 7.93usft at 6267.17usft MD (5908.92 TVD, 26.89 N, -1.01 E) - Point	0.00	0.00	5,916.15	30.00	0.00	1,529,542.52	3,448,606.24	40.775732	-103.880198
Heston LD06-625_Rev - actual wellpath misses target center by 7.93usft at 6267.17usft MD (5908.92 TVD, 26.89 N, -1.01 E) - Point	0.00	0.00	5,916.15	30.00	0.00	1,529,542.52	3,448,606.24	40.775732	-103.880198

Directional Difficulty Index

Average Dogleg over Survey:	1.30 °/100usft	Maximum Dogleg over Survey:	12.46 °/100usft at 5,841.00 usft
Net Tortousity applicable to Plans:	0.59 °/100usft	Directional Difficulty Index:	6.805

Audit Info

North Reference Sheet for Sec. 5-T9N-R58W (Heston PAD) - Heston LD06-625 - Plan A

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

Vertical Depths are relative to KB=30' @ 4831.00usft (H&P 517). Northing and Easting are relative to Heston LD06-625

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: 0.99999876

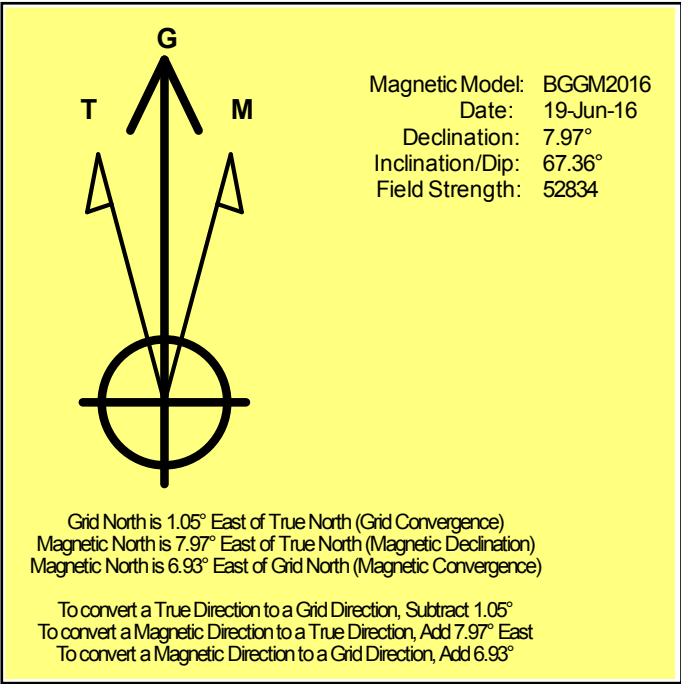
Grid Coordinates of Well: 1,529,512.52 usft N, 3,448,606.24 usft E

Geographical Coordinates of Well: 40° 46' 32.34" N, 103° 52' 48.72" W

Grid Convergence at Surface is: 1.05°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,180.00usft the Bottom Hole Displacement is 9,909.93usft in the Direction of 268.60° (Grid).

Magnetic Convergence at surface is: -6.93° (19 June 2016, , BGGM2016)



Noble Energy

Weld County, CO (NAD 83)

Sec. 5-T9N-R58W (Heston PAD)

Heston LD06-625

05-123-40813

Plan A

Design: Actual Surveys

Sperry Drilling Services

Geodetic Report

09 August, 2016

Well Coordinates: 1,529,512.52 N, 3,448,606.24 E (40° 46' 32.34" N, 103° 52' 48.72" W)

Ground Level: 4,801.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 81

Centered on Well Heston LD06-625

KB=30' @ 4831.00usft (H&P 517)

N

Grid

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Design Report for Heston LD06-625 - 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	40.775650	-103.880200	1,529,512.52	3,448,606.24
84.00	0.63	143.60	84.00	-0.37	0.27	40.775649	-103.880199	1,529,512.15	3,448,606.51
179.00	0.61	126.56	178.99	-1.09	0.99	40.775647	-103.880197	1,529,511.42	3,448,607.23
273.00	0.62	142.74	272.99	-1.80	1.70	40.775645	-103.880194	1,529,510.72	3,448,607.94
367.00	0.65	128.51	366.98	-2.53	2.43	40.775643	-103.880192	1,529,509.98	3,448,608.66
462.00	0.61	124.49	461.98	-3.15	3.26	40.775641	-103.880189	1,529,509.36	3,448,609.50
557.00	0.39	162.85	556.97	-3.75	3.78	40.775640	-103.880187	1,529,508.77	3,448,610.01
651.00	0.39	155.82	650.97	-4.35	4.00	40.775638	-103.880186	1,529,508.17	3,448,610.24
745.00	0.32	139.03	744.97	-4.84	4.30	40.775637	-103.880185	1,529,507.68	3,448,610.54
840.00	0.22	111.80	839.97	-5.11	4.65	40.775636	-103.880184	1,529,507.41	3,448,610.88
934.00	0.33	137.28	933.97	-5.37	5.00	40.775635	-103.880183	1,529,507.15	3,448,611.24
1,029.00	0.11	80.98	1,028.97	-5.56	5.27	40.775635	-103.880182	1,529,506.96	3,448,611.51
1,123.00	0.17	104.55	1,122.97	-5.58	5.50	40.775634	-103.880181	1,529,506.94	3,448,611.74
1,218.00	0.29	68.59	1,217.96	-5.53	5.86	40.775635	-103.880179	1,529,506.99	3,448,612.10
1,312.00	0.31	110.96	1,311.96	-5.53	6.32	40.775635	-103.880178	1,529,506.99	3,448,612.55
1,407.00	0.45	109.61	1,406.96	-5.75	6.91	40.775634	-103.880176	1,529,506.77	3,448,613.15
1,501.00	0.59	109.95	1,500.96	-6.04	7.71	40.775633	-103.880173	1,529,506.48	3,448,613.95
1,596.00	0.32	116.51	1,595.95	-6.32	8.41	40.775632	-103.880170	1,529,506.20	3,448,614.65
1,695.00	0.35	110.18	1,694.95	-6.55	8.94	40.775632	-103.880168	1,529,505.97	3,448,615.18
1,785.00	0.21	46.14	1,784.95	-6.53	9.32	40.775632	-103.880167	1,529,505.99	3,448,615.55
1,876.00	0.37	97.98	1,875.95	-6.46	9.73	40.775632	-103.880166	1,529,506.06	3,448,615.97
1,963.00	0.16	343.73	1,962.95	-6.38	9.97	40.775632	-103.880165	1,529,506.14	3,448,616.21
2,058.00	0.46	312.09	2,057.95	-6.00	9.65	40.775633	-103.880166	1,529,506.52	3,448,615.89
2,152.00	1.27	70.31	2,151.94	-5.39	10.35	40.775635	-103.880163	1,529,507.13	3,448,616.59
2,247.00	3.44	85.75	2,246.86	-4.83	14.19	40.775636	-103.880149	1,529,507.69	3,448,620.42
2,342.00	4.68	81.77	2,341.62	-4.06	20.87	40.775638	-103.880125	1,529,508.46	3,448,627.10
2,436.00	6.46	87.25	2,435.17	-3.26	29.94	40.775640	-103.880092	1,529,509.26	3,448,636.18
2,531.00	7.53	82.64	2,529.46	-2.20	41.46	40.775642	-103.880051	1,529,510.31	3,448,647.69
2,625.00	9.03	85.88	2,622.48	-0.88	54.92	40.775645	-103.880002	1,529,511.63	3,448,661.16
2,720.00	10.49	84.98	2,716.10	0.41	70.97	40.775648	-103.879944	1,529,512.93	3,448,677.21
2,814.00	11.58	84.28	2,808.36	2.10	88.89	40.775651	-103.879879	1,529,514.62	3,448,695.12
2,909.00	12.12	83.95	2,901.34	4.10	108.29	40.775656	-103.879809	1,529,516.62	3,448,714.53
3,004.00	11.69	81.91	2,994.29	6.50	127.74	40.775662	-103.879739	1,529,519.02	3,448,733.97
3,098.00	11.50	85.38	3,086.38	8.60	146.51	40.775666	-103.879671	1,529,521.12	3,448,752.74
3,193.00	11.89	89.14	3,179.41	9.51	165.73	40.775668	-103.879601	1,529,522.03	3,448,771.97
3,287.00	11.98	89.34	3,271.37	9.77	185.17	40.775668	-103.879531	1,529,522.28	3,448,791.40
3,382.00	12.90	88.20	3,364.14	10.21	205.63	40.775668	-103.879457	1,529,522.73	3,448,811.86
3,476.00	13.01	85.76	3,455.75	11.33	226.67	40.775670	-103.879381	1,529,523.84	3,448,832.90
3,571.00	12.93	85.86	3,548.33	12.88	247.93	40.775673	-103.879304	1,529,525.40	3,448,854.17
3,666.00	12.99	85.95	3,640.91	14.41	269.18	40.775676	-103.879228	1,529,526.92	3,448,875.42
3,760.00	12.93	84.96	3,732.51	16.08	290.20	40.775680	-103.879152	1,529,528.59	3,448,896.43
3,855.00	12.29	85.48	3,825.22	17.81	310.86	40.775683	-103.879077	1,529,530.32	3,448,917.10

Design Report for Heston LD06-625 - 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)
3,949.00	11.55	86.73	3,917.19	19.13	330.23	40.775686	-103.879007	1,529,531.65	3,448,936.47
4,044.00	12.52	86.37	4,010.10	20.33	350.00	40.775688	-103.878935	1,529,532.84	3,448,956.24
4,138.00	12.93	87.00	4,101.80	21.52	370.68	40.775691	-103.878861	1,529,534.04	3,448,976.91
4,233.00	12.67	87.57	4,194.44	22.52	391.70	40.775692	-103.878785	1,529,535.04	3,448,997.94
4,328.00	11.21	86.57	4,287.38	23.51	411.33	40.775694	-103.878714	1,529,536.03	3,449,017.56
4,517.00	13.19	80.86	4,472.11	28.04	450.96	40.775704	-103.878570	1,529,540.56	3,449,057.20
4,611.00	12.15	75.18	4,563.82	32.27	471.11	40.775715	-103.878497	1,529,544.79	3,449,077.35
4,706.00	11.32	76.17	4,656.83	37.06	489.83	40.775727	-103.878430	1,529,549.58	3,449,096.07
4,800.00	9.87	78.12	4,749.23	40.92	506.67	40.775737	-103.878369	1,529,553.44	3,449,112.91
4,894.00	9.49	83.63	4,841.89	43.44	522.26	40.775743	-103.878312	1,529,555.96	3,449,128.50
4,989.00	9.16	80.46	4,935.64	45.56	537.50	40.775748	-103.878257	1,529,558.08	3,449,143.74
5,083.00	7.90	78.72	5,028.60	48.07	551.21	40.775754	-103.878207	1,529,560.58	3,449,157.45
5,178.00	6.28	76.24	5,122.87	50.58	562.66	40.775761	-103.878166	1,529,563.10	3,449,168.90
5,273.00	4.57	71.19	5,217.44	53.04	571.29	40.775767	-103.878134	1,529,565.55	3,449,177.53
5,367.00	3.11	288.38	5,311.35	55.05	572.42	40.775772	-103.878130	1,529,567.57	3,449,178.66
5,462.00	13.67	275.22	5,405.20	56.89	558.76	40.775778	-103.878179	1,529,569.41	3,449,164.99
5,557.00	18.97	272.42	5,496.34	58.56	532.13	40.775784	-103.878275	1,529,571.08	3,449,138.37
5,651.00	26.24	268.19	5,583.07	58.55	496.05	40.775786	-103.878406	1,529,571.07	3,449,102.28
5,746.00	37.88	267.98	5,663.44	56.86	445.73	40.775784	-103.878587	1,529,569.37	3,449,051.97
5,841.00	49.67	266.49	5,731.92	53.60	380.21	40.775778	-103.878824	1,529,566.12	3,448,986.45
5,935.00	57.09	268.49	5,787.96	50.36	304.89	40.775773	-103.879096	1,529,562.88	3,448,911.13
6,030.00	63.47	265.27	5,835.04	45.80	222.58	40.775765	-103.879394	1,529,558.32	3,448,828.81
6,124.00	69.56	265.65	5,872.48	38.99	136.67	40.775750	-103.879704	1,529,551.50	3,448,742.91
6,219.00	77.21	264.09	5,899.63	30.83	46.08	40.775732	-103.880032	1,529,543.34	3,448,652.31
6,314.00	83.78	268.49	5,915.31	24.80	-47.35	40.775721	-103.880370	1,529,537.32	3,448,558.89
6,408.00	91.47	268.28	5,919.20	22.16	-141.16	40.775718	-103.880708	1,529,534.68	3,448,465.08
6,503.00	91.38	268.58	5,916.84	19.56	-236.10	40.775716	-103.881051	1,529,532.07	3,448,370.14
6,598.00	90.45	268.17	5,915.32	16.86	-331.04	40.775713	-103.881394	1,529,529.38	3,448,275.19
6,692.00	89.53	268.10	5,915.34	13.80	-424.99	40.775709	-103.881734	1,529,526.32	3,448,181.24
6,787.00	88.88	267.73	5,916.66	10.35	-519.92	40.775705	-103.882076	1,529,522.87	3,448,086.32
6,881.00	89.74	268.63	5,917.79	7.36	-613.86	40.775701	-103.882416	1,529,519.88	3,447,992.37
6,976.00	89.34	268.12	5,918.55	4.67	-708.82	40.775698	-103.882759	1,529,517.19	3,447,897.42
7,070.00	90.30	267.87	5,918.85	1.38	-802.76	40.775694	-103.883098	1,529,513.90	3,447,803.47
7,165.00	89.96	267.87	5,918.63	-2.15	-897.70	40.775689	-103.883441	1,529,510.37	3,447,708.54
7,259.00	90.17	268.91	5,918.53	-4.79	-991.66	40.775687	-103.883780	1,529,507.73	3,447,614.58
7,354.00	91.31	269.41	5,917.30	-6.18	-1,086.64	40.775688	-103.884123	1,529,506.33	3,447,519.60
7,448.00	91.13	269.33	5,915.30	-7.22	-1,180.61	40.775689	-103.884463	1,529,505.30	3,447,425.63
7,570.00	91.00	269.28	5,913.03	-8.70	-1,302.58	40.775691	-103.884903	1,529,503.82	3,447,303.66
7,664.00	90.69	269.42	5,911.65	-9.76	-1,396.57	40.775693	-103.885242	1,529,502.75	3,447,209.67
7,759.00	90.42	269.27	5,910.72	-10.85	-1,491.55	40.775695	-103.885585	1,529,501.67	3,447,114.68
7,853.00	90.55	269.35	5,909.93	-11.98	-1,585.54	40.775697	-103.885925	1,529,500.54	3,447,020.69
7,948.00	90.86	269.65	5,908.76	-12.81	-1,680.53	40.775699	-103.886268	1,529,499.71	3,446,925.71

Design Report for Heston LD06-625 - 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)
8,043.00	91.13	269.64	5,907.11	-13.40	-1,775.52	40.775702	-103.886611	1,529,499.12	3,446,830.72
8,137.00	91.25	269.95	5,905.16	-13.74	-1,869.50	40.775706	-103.886950	1,529,498.78	3,446,736.74
8,326.00	91.29	269.69	5,900.97	-14.33	-2,058.45	40.775714	-103.887632	1,529,498.19	3,446,547.79
8,421.00	91.29	269.60	5,898.83	-14.92	-2,153.42	40.775717	-103.887975	1,529,497.60	3,446,452.82
8,515.00	91.26	269.64	5,896.74	-15.54	-2,247.40	40.775720	-103.888314	1,529,496.98	3,446,358.84
8,610.00	90.71	269.20	5,895.11	-16.50	-2,342.38	40.775722	-103.888657	1,529,496.02	3,446,263.86
8,705.00	90.13	268.53	5,894.41	-18.38	-2,437.36	40.775721	-103.889000	1,529,494.13	3,446,168.88
8,799.00	89.91	269.02	5,894.38	-20.39	-2,531.33	40.775721	-103.889340	1,529,492.12	3,446,074.91
8,893.00	89.76	268.83	5,894.65	-22.16	-2,625.32	40.775720	-103.889679	1,529,490.36	3,445,980.92
8,988.00	91.45	268.61	5,893.64	-24.28	-2,720.28	40.775719	-103.890022	1,529,488.24	3,445,885.96
9,083.00	91.30	268.67	5,891.36	-26.53	-2,815.23	40.775718	-103.890365	1,529,485.98	3,445,791.01
9,177.00	90.99	268.60	5,889.49	-28.77	-2,909.18	40.775716	-103.890704	1,529,483.75	3,445,697.06
9,272.00	90.72	268.46	5,888.07	-31.21	-3,004.14	40.775715	-103.891047	1,529,481.31	3,445,602.10
9,366.00	90.28	267.86	5,887.25	-34.23	-3,098.09	40.775711	-103.891386	1,529,478.29	3,445,508.15
9,461.00	90.16	268.22	5,886.88	-37.48	-3,193.03	40.775707	-103.891729	1,529,475.04	3,445,413.21
9,555.00	89.92	268.36	5,886.82	-40.28	-3,286.99	40.775704	-103.892069	1,529,472.24	3,445,319.25
9,650.00	89.27	268.26	5,887.49	-43.08	-3,381.95	40.775701	-103.892412	1,529,469.44	3,445,224.29
9,744.00	90.19	266.63	5,887.93	-47.27	-3,475.85	40.775694	-103.892751	1,529,465.25	3,445,130.39
9,839.00	90.29	266.33	5,887.53	-53.11	-3,570.67	40.775683	-103.893094	1,529,459.41	3,445,035.57
9,933.00	89.89	266.26	5,887.39	-59.18	-3,664.47	40.775671	-103.893433	1,529,453.34	3,444,941.77
10,028.00	89.61	266.26	5,887.80	-65.38	-3,759.27	40.775658	-103.893775	1,529,447.14	3,444,846.97
10,123.00	90.44	267.35	5,887.76	-70.67	-3,854.12	40.775649	-103.894118	1,529,441.85	3,444,752.12
10,217.00	91.55	268.14	5,886.13	-74.37	-3,948.03	40.775643	-103.894457	1,529,438.15	3,444,658.21
10,312.00	91.27	268.73	5,883.79	-76.96	-4,042.96	40.775641	-103.894800	1,529,435.56	3,444,563.28
10,406.00	91.06	268.14	5,881.88	-79.53	-4,136.91	40.775638	-103.895139	1,529,432.99	3,444,469.33
10,501.00	91.06	268.93	5,880.12	-81.96	-4,231.86	40.775636	-103.895482	1,529,430.56	3,444,374.38
10,596.00	90.75	268.39	5,878.62	-84.18	-4,326.82	40.775635	-103.895825	1,529,428.34	3,444,279.42
10,690.00	90.35	268.16	5,877.72	-87.01	-4,420.78	40.775632	-103.896165	1,529,425.51	3,444,185.47
10,785.00	90.26	268.12	5,877.21	-90.09	-4,515.72	40.775628	-103.896508	1,529,422.43	3,444,090.52
10,974.00	89.80	267.98	5,877.11	-96.52	-4,704.61	40.775620	-103.897190	1,529,415.99	3,443,901.63
11,069.00	89.58	267.46	5,877.63	-100.30	-4,799.54	40.775614	-103.897533	1,529,412.22	3,443,806.71
11,163.00	89.21	267.31	5,878.62	-104.59	-4,893.43	40.775607	-103.897872	1,529,407.93	3,443,712.81
11,257.00	90.82	268.91	5,878.60	-107.69	-4,987.38	40.775603	-103.898211	1,529,404.83	3,443,618.87
11,352.00	90.57	269.03	5,877.44	-109.40	-5,082.35	40.775603	-103.898554	1,529,403.12	3,443,523.89
11,447.00	90.11	269.09	5,876.88	-110.96	-5,177.34	40.775604	-103.898897	1,529,401.56	3,443,428.90
11,541.00	89.61	268.02	5,877.11	-113.33	-5,271.31	40.775602	-103.899237	1,529,399.19	3,443,334.94
11,636.00	89.40	268.22	5,877.93	-116.44	-5,366.25	40.775598	-103.899580	1,529,396.07	3,443,239.99
11,730.00	90.08	269.33	5,878.36	-118.45	-5,460.23	40.775597	-103.899919	1,529,394.06	3,443,146.01
11,825.00	91.46	269.32	5,877.08	-119.57	-5,555.21	40.775599	-103.900262	1,529,392.95	3,443,051.03
11,919.00	91.06	268.63	5,875.01	-121.25	-5,649.17	40.775599	-103.900601	1,529,391.26	3,442,957.07
12,014.00	90.75	268.35	5,873.51	-123.76	-5,744.13	40.775597	-103.900944	1,529,388.76	3,442,862.12
12,109.00	90.60	268.36	5,872.39	-126.48	-5,839.08	40.775594	-103.901287	1,529,386.03	3,442,767.16

Design Report for Heston LD06-625 - 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)
12,203.00	90.51	268.88	5,871.48	-128.75	-5,933.05	40.775592	-103.901627	1,529,383.77	3,442,673.19
12,298.00	90.01	268.23	5,871.05	-131.14	-6,028.02	40.775590	-103.901970	1,529,381.38	3,442,578.23
12,392.00	92.08	269.23	5,869.34	-133.23	-6,121.97	40.775589	-103.902309	1,529,379.29	3,442,484.27
12,487.00	92.08	268.62	5,865.89	-135.01	-6,216.89	40.775589	-103.902652	1,529,377.51	3,442,389.35
12,581.00	92.60	268.98	5,862.05	-136.97	-6,310.79	40.775588	-103.902991	1,529,375.54	3,442,295.45
12,676.00	92.46	268.22	5,857.86	-139.29	-6,405.67	40.775587	-103.903333	1,529,373.22	3,442,200.57
12,771.00	89.96	267.88	5,855.85	-142.52	-6,500.59	40.775582	-103.903676	1,529,369.99	3,442,105.66
12,866.00	90.61	267.50	5,855.38	-146.35	-6,595.51	40.775577	-103.904019	1,529,366.16	3,442,010.74
12,960.00	91.68	267.57	5,853.50	-150.40	-6,689.40	40.775570	-103.904358	1,529,362.12	3,441,916.84
13,055.00	89.77	268.48	5,852.30	-153.67	-6,784.33	40.775566	-103.904701	1,529,358.85	3,441,821.91
13,149.00	90.40	268.34	5,852.16	-156.28	-6,878.30	40.775563	-103.905041	1,529,356.24	3,441,727.95
13,244.00	91.26	268.63	5,850.78	-158.79	-6,973.25	40.775561	-103.905384	1,529,353.73	3,441,632.99
13,339.00	89.16	268.38	5,850.44	-161.27	-7,068.21	40.775559	-103.905727	1,529,351.25	3,441,538.03
13,528.00	88.70	268.00	5,853.96	-167.24	-7,257.08	40.775552	-103.906409	1,529,345.28	3,441,349.16
13,622.00	89.22	268.08	5,855.67	-170.45	-7,351.01	40.775548	-103.906748	1,529,342.07	3,441,255.23
13,717.00	89.62	267.43	5,856.63	-174.17	-7,445.94	40.775542	-103.907091	1,529,338.35	3,441,160.31
13,811.00	90.36	267.15	5,856.65	-178.62	-7,539.83	40.775535	-103.907430	1,529,333.90	3,441,066.42
13,906.00	91.23	267.60	5,855.33	-182.97	-7,634.72	40.775527	-103.907773	1,529,329.55	3,440,971.53
14,000.00	91.77	267.47	5,852.87	-187.01	-7,728.60	40.775521	-103.908112	1,529,325.51	3,440,877.65
14,095.00	91.84	268.70	5,849.88	-190.18	-7,823.50	40.775517	-103.908455	1,529,322.34	3,440,782.75
14,190.00	91.00	269.03	5,847.52	-192.06	-7,918.45	40.775516	-103.908798	1,529,320.46	3,440,687.80
14,284.00	91.28	268.81	5,845.65	-193.83	-8,012.41	40.775516	-103.909137	1,529,318.68	3,440,593.83
14,378.00	91.62	268.74	5,843.27	-195.84	-8,106.36	40.775515	-103.909477	1,529,316.68	3,440,499.88
14,473.00	89.06	269.05	5,842.71	-197.67	-8,201.33	40.775515	-103.909819	1,529,314.84	3,440,404.91
14,567.00	88.78	268.84	5,844.48	-199.40	-8,295.30	40.775515	-103.910159	1,529,313.11	3,440,310.94
14,662.00	88.54	268.72	5,846.70	-201.43	-8,390.25	40.775514	-103.910502	1,529,311.09	3,440,215.99
14,756.00	89.06	268.70	5,848.67	-203.54	-8,484.21	40.775513	-103.910841	1,529,308.98	3,440,122.04
14,851.00	89.31	268.03	5,850.02	-206.25	-8,579.16	40.775510	-103.911184	1,529,306.27	3,440,027.09
14,945.00	90.45	269.14	5,850.22	-208.57	-8,673.13	40.775508	-103.911523	1,529,303.94	3,439,933.12
15,040.00	91.50	269.15	5,848.60	-209.99	-8,768.10	40.775509	-103.911866	1,529,302.53	3,439,838.14
15,134.00	91.22	268.86	5,846.37	-211.62	-8,862.06	40.775509	-103.912206	1,529,300.90	3,439,744.19
15,229.00	90.11	268.61	5,845.27	-213.72	-8,957.03	40.775508	-103.912549	1,529,298.80	3,439,649.22
15,324.00	90.11	268.61	5,845.09	-216.02	-9,052.00	40.775506	-103.912892	1,529,296.49	3,439,554.24
15,418.00	89.80	268.42	5,845.16	-218.46	-9,145.97	40.775504	-103.913231	1,529,294.06	3,439,460.28
15,513.00	89.89	268.18	5,845.42	-221.28	-9,240.93	40.775501	-103.913574	1,529,291.24	3,439,365.32
15,608.00	90.64	268.26	5,844.98	-224.23	-9,335.88	40.775498	-103.913917	1,529,288.29	3,439,270.37
15,702.00	91.52	268.62	5,843.21	-226.79	-9,429.83	40.775495	-103.914256	1,529,285.73	3,439,176.42
15,797.00	92.12	268.51	5,840.19	-229.17	-9,524.75	40.775494	-103.914599	1,529,283.35	3,439,081.50
15,891.00	92.24	268.26	5,836.62	-231.81	-9,618.65	40.775491	-103.914938	1,529,280.70	3,438,987.60
15,986.00	93.65	268.14	5,831.73	-234.79	-9,713.47	40.775487	-103.915281	1,529,277.72	3,438,892.78
16,081.00	93.35	267.60	5,825.94	-238.32	-9,808.23	40.775482	-103.915623	1,529,274.20	3,438,798.02
16,121.00	93.35	267.41	5,823.60	-240.06	-9,848.12	40.775480	-103.915767	1,529,272.46	3,438,758.13

Design Report for Heston LD06-625 - 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)
16,180.00	93.35	267.41	5,820.15	-242.72	-9,906.96	40.775475	-103.915980	1,529,269.80	3,438,699.29

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
84.00	84.00	-0.37	0.27	First Gyro Data Survey at 84.00ft
1,876.00	1,875.95	-6.46	9.73	Final Gyro data Survey at 1876.00ft
1,963.00	1,962.95	-6.38	9.97	First Intermediate Sperry MWD Survey Corrected by Surcon at 1963.00ft
6,314.00	5,915.31	24.80	-47.35	Final Intermediate Sperry MWD Survey Corrected by Surcon at 6314.00ft
6,408.00	5,919.20	22.16	-141.16	First Production Sperry MWD Survey Corrected by Surcon at 6408.00ft
16,121.00	5,823.60	-240.06	-9,848.12	Final Production Sperry MWD Survey Corrected by Surcon at 16121.00ft
16,180.00	5,820.15	-242.72	-9,906.96	Straight Line Projection to TD at 16180.00ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/-S (usft)	+E/-W (usft)	
Target	Heston LD06-625_Rev A1_BHL	268.61	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
84.00	1,876.00	Gyro Data Surveys	NS-GYRO-MS
1,963.00	6,314.00	Intermediate Sperry MWD Surveys	MWD+IFR1+MS_WY
6,408.00	16,180.00	Production Sperry MWD Surveys	MWD+IFR1+MS_WY

Design Report for Heston LD06-625 - 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:	1.30 °/100usft	Maximum Dogleg over Survey:	12.46 °/100usft at 5,841.00 usft
Net Tortousity applicable to Plans:	0.59 °/100usft	Directional Difficulty Index:	6.805

Audit Info

North Reference Sheet for Sec. 5-T9N-R58W (Heston PAD) - Heston LD06-625 - Plan A

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

Vertical Depths are relative to KB=30' @ 4831.00usft (H&P 517). Northing and Easting are relative to Heston LD06-625

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: 0.99999876

Grid Coordinates of Well: 1,529,512.52 usft N, 3,448,606.24 usft E

Geographical Coordinates of Well: 40° 46' 32.34" N, 103° 52' 48.72" W

Grid Convergence at Surface is: 1.05°

Based upon Minimum Curvature type calculations, at a Measured Depth of 16,180.00usft

the Bottom Hole Displacement is 9,909.93usft in the Direction of 268.60° (Grid).

Magnetic Convergence at surface is: -6.93° (19 June 2016, , BGGM2016)

